THE PRECAUTIONARY AND DIFFERENTIATED RESPONSIBILITY PRINCIPLES IN THE CLIMATE CHANGE CONTEXT

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Abstract

The Precautionary Principle ("PP") as formulated in the context of climate change requires countries to take measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse impacts despite a lack of full scientific certainty as to such causes. The Differentiated Responsibility Principle ("the DR Principle") recognizes a common responsibility of all countries to prevent climate change and calls on developed states to assume a leadership role in the global effort to prevent climate change. The DR Principle requires some developed countries to place a restriction on their GHG emissions. Unfortunately this means that at least in the short term, developing countries are not subject to greenhouse gas (GHG) emission targets, thereby exacerbating the climate change problem.

Implementing the DR Principle in this manner conflicts with the PP. To avoid this conflict, the DR Principle should be formulated in a manner which demands some restriction on GHG emission, by developing countries. Efforts to prevent human induced climate change should be made by all countries regardless of their individual culpability for climate change if the PP is to have effect.

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Dedication

Dedicated to God almighty with whom all things are possible.

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Introduction and Overview

The Precautionary Principle, ("PP") and the Differentiated Responsibility Principle ("DR Principle") have increasingly been recognized in international environmental agreements.[1] The PP is a proactive approach to environmental problems. In some of its formulations, the PP requires that where there is a risk of harm to the environment, parties should take measures to anticipate, prevent or minimize the causes of such harm even if there is no scientific certainty regarding the harm.[2] In some instances, the measures that parties should take in order to enforce the PP are differentiated. The PP arose out of the inadequacy of the assimilative capacity approach to environmental problems, which presume that the environment has an infinite capacity to accommodate the influence of human activity without unacceptable consequences.[3]

There are different forms of the PP in international environmental agreements resulting in a lack of uniformity in its meaning.[4] For example, some international environmental agreements state that in cases where there is a risk of harm to the environment, positive action to protect the environment should not be delayed while waiting

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[1]See for example: *The United Nations Framework Convention on Climate Change 1992*.For a full text of the Convention, 31 I.L.M 849 ["FCCC"]; Kyoto *Protocol to the United Nations Framework Convention on Climate Change 1997*.UN Doc.FCCC/CP/1997/7/Add.1 article 3 (1) ["the Protocol"].For a full text of the Protocol see 37 I.L.M 32.

[2]*Bamako Convention on Tran's Boundary Hazardous Waste: (Bamako Convention on Hazardous Wastes Within Africa*, Jan. 30, 1991, art. 4, 30 I.L.M. 773) ("Bamako Convention").

[3]O. McIntyre and T. Mosedale, "The Precautionary Principle as a Norm of Customary International Law'' (1997) 9 J. Envt'.L 221 at 222 [O McIntyre and T Mosedale, "The Precautionary Principle"].

[4] For example, *Bergen Ministerial Declaration on Sustainable Development in the ECE-Region*, UNDoc.A/CONF.151/PC/ 10 (1990), reprinted in 1Y.B Int'l Envtl. L 429, 431 (1990). ["Bergen Ministerial Declaration"].The United Nations Environment Programme, (Report of the Governing Council on the work of its Fifteenth session, U.N GAOR, 44th Session, Supp. No.25,12th, mtg. at 153,) ["UNEP"].

for irrefutable scientific proof of harm to become available.[5] Other formulations of the PP require parties to take precautionary measures to anticipate, prevent or minimize the causes of an environmental harm.[6]

The DR Principle acknowledges a differentiated responsibility among countries to protect the environment based on their contributions to environmental problems and their ability to rectify the problem. The DR Principle provides for different, less onerous standards for some countries over others.[7]

The PP and the DR Principle are not opposites. They compliment each other and are often used together in international environmental agreements.[8] In some instances, they together promote universal participation in order to protect the environment.[9] However in other instances, some aspects of the DR Principle tend to deviate from the aims of the PP.[10] The latter situation manifests itself under the *United Nations Framework Convention on*

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[5]Bamako Convention, *supra* note 2. See also Also, Arie Trouwburst, *Evolution and Status of the Precautionary Principle in International Law* (London: Kluwer Law International, 2002) 15 [Arie Trouwburst *Evolution and Status of the Precautionary Principle*].

[6]See for example the FCCC *supra* note 1 at article 3.

[7]Monica Brookman, "Equality Among Unequals in International Environmental Law" (2000) 25 Columbia Journal of Environmental Law, 369 at 373. [Monica Brookman, "Equality Among Unequals in International Environmental Law"].

[8]The FCCC *supra* note 1 at article 3, the Protocol *supra* note 1 at article 3.

[9]The *Montreal Protocol on Substances that Deplete the Ozone Layer*, Sept. 16, 1987 (entered into force Jan.1 1989), 26 I.L.M 1541 ["Montreal Protocol"]. Montreal Protocol demonstrates the extent to which the use of differential responsibilities can promote universal participation in view of the fact that most developing countries in addition to developed ones have joined the Montreal Protocol. See also, Anita Margrethe Halvorssen, *Equality Among Unequals in International Environmental Law, Differential Treatment for Developing Countries*, (Boulder: Westview Press, 1999) 4. For the suggestion that the Montreal Protocol has succeeded in phasing out emissions of ozone depleting agents see, Timothy Swanson & Robin Mason, *The Impact of Multilateral Agreements: The Case of the Montreal Protocol*(Fondazione Eni Enrico Matte Note di Lavoro, Working Paper No 81, 2002) available online at http://www.feem.it/NR/rdonlyres/5542/5542BA50-4119-4546-8989-3D4CC55CEA37/184/8102.pdf . (Last visited on 24th August, 2005).(Arguing *inter alia* that the regime promoted by the Montreal Protocol has significantly diminished the emissions of chlorofluorocarbons).

[10]A. Boyle, "Comment on D. Pone Nava's Paper on Capacity-Building" in W.Lang (ed.,) *Sustainable Development and International Law* (London ; Boston : Graham & Trotman/M. Nijhoff, 1995) 139, ("…there are two contradictory trends in international environmental law-making. On the one hand, the international community is seeking a precautionary approach to environmental issues whilst on the other hand; the obligations it adopts are qualified by reference to the capabilities of the states concerned").

Climate Change, ("FCCC")[11]and the *Kyoto Protocol*, ("Protocol") [12] which are the key international legal documents that encourage countries to prevent or mitigate the impact of climate change.

The FCCC requires countries to … "take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects…"[13] The FCCC further states that:

> …where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.[14]

The aim of the PP here is to prevent climate change or at least mitigate its adverse consequences by means of measures which are cost effective. Consequently in applying the PP, responsibilities may be differentiated on grounds that measures which may be cost effective for a party may not necessarily be so for another.

Arguably, the causes and consequences associated with human induced climate change appear to be known.[15] Scientists say that climate change commonly known as global warming is caused by the emission of heat trapping gases known as greenhouse gases ("GHGs.") produced by vehicles, power plants and deforestation. As these gases build up, they act like a big blanket, over-heating the planet and threatening global health, economy

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[11]FCCC, *supra* note 1.
[12]The Protocol, *supra* note 1.
[13]FCCC, *supra* note 1 at article 3(3).
[14]*Ibid*.
[15]See generally, E. Christie, "The Greenhouse Gases and Environmental Law" (1990) 7 Envt'l &Planning L.J 114. Daniel Bodansky, '' The United Nations Framework Convention on Climate Change: A Commentary''(1993) 18 Yale Journal of International Law 455-6 [D. Bodansky, ''Commentary''], Jeremy Leggett, "Global Warming: The Scientific Evidence and its Implications" (1992) 2 Transnat'l L & Contemp Problems 1, Katharine Q. Seelye & Andrew C. Revkin, *Panel Tells Bush Global Warming is Getting Worse,* N.Y Times, June 7, 2001 at A1., Alanna Mitchell, *Scientists Raise Alarm of Climate Catastrophe,* The Globe & Mail, Jan.22, 2001 at A1.For an overview of the current literature on the causes and risks of climate change, see generally, National Academy of Sciences, "Climate Change Science, An Analysis of Some Key Questions" available online at http://www4.nationalacademics.org/nashome.nsf. (Last visited on 24th August, 2005).

and environment.[16] As a result of their huge industrial activities and reliance on fossil fuels, developed countries, especially the United States, emit more than one half of current global GHG's. However, evidence also suggests that developing countries for example China and India are emitting GHG's at an increasing rate which emissions may surpass that of developed countries in future.[17] While it may be argued that owing to the distribution of carbon sinks within its jurisdiction, some developed countries like Canada may use carbon sinks to offset ongoing GHG emissions, the same may not be said of developing countries.

Scientists also say that climate change will lead to a rise in sea levels, meteorological instability, departure from normal agricultural conditions, increased rainfall leading to increased pollution due to run off, and increased instances of heat stress leading to respiratory illness.[18] The rise in atmospheric greenhouse gas emissions is closely correlated with increasing rates of fossil fuel combustion associated with each type of energy end-use (for example, trucking, electric lighting, heating, and cooling) depending on the composition and quantity of the fuel used to generate the energy.[19]

Despite the fears about a threat of serious harm, full scientific certainty as to the causes and consequences of climate change has not been achieved.[20] There is still some scientific uncertainty surrounding the extent to which climatic conditions will vary and when

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[16] *Ibid*.
[17] Nielson, Chris P. and Michael B. McElroy. "Introduction and Overview." *In Energizing China: Reconciling Environmental Protection and Economic Growth*. Cambridge MA: Harvard University Press, 1997:27.
[18] See David Boyd, *Unnatural Law, Rethinking Canadian Environmental Law and Policy (*Vancouver: UBC Press 2003) 83-4.
[19] *Ibid*.
[20] See generally, Para 5 of the preamble to FCCC *supra* note 1 (…there are many uncertainties in predictions of climate change particularly with regard to timing, magnitude and regional patterns thereof) Lakshman Guruswamy, "Climate Change: The Next Dimension"(2000) 15 J. Land Use & Envtl. Law, 341.[Lakshman Guruswamy, "Climate Change"]. Also, US Global Change Research Program, The Intergovernmental Panel on Climate Change, available online at http://www.usgcrp.gov/usgcrp/IPCCINFO.html. (Last visited on 13th April, 2004) also, Working Group 11, Intergovernmental Panel on Climate Change, "Summary for Policymakers: Scientific- Technical Analysis of Impacts, Adaptations and Mitigation of Climate Change", available online at http://www.ipcc.ch/pub/sarsum2.htm, at 3.2 (Last visited on 13th April 2004).

forecast changes will occur.[21] Also, owing to the possibility of inaccurate prediction, it is unreliable to depend solely on scenario modelling to determine the possibility and extent of climate change.[22] Finally, there is a preventative motive behind the formulation of the PP in the FCCC. As a result, there is an ongoing need to apply the PP to climate change even if the causes and risks associated with climate change appear to be known.[23]

Under the FCCC, countries are required to protect the climate system for the benefit of present and future generations of humankind on the basis of equity and in accordance with their **common but differentiated responsibilities** and **respective capabilities**.[24] This aspect of the DR Principle translates into restrictions on GHG emission by a majority of developed countries, which are expected to take the lead in combating climate change without placing similar restrictions on developing countries.[25] Developing countries are expected to contribute as much as 45% of GHG emissions within the next few years. As a result, the DR Principle becomes a vehicle to exacerbate human induced climate change. Unfortunately, the Protocol also adopts the DR Principle.[26]

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[21]*Ibid.*, See also, Andrew C. Revkin, "Global Waffling: When Will We Be Sure?" ,N.Y Times, Sept 10, 2000 at WK3 (discussing the disconnect between scientific evidence and the level of certainty required before policy makers will be required to take action, which creates a risk that by the time policy actions are taken, it may be too late to do any good) J.D Mahlman, "Uncertainties in Projections of Human-Caused Climate Warming" (1997) 278 Sci. 1416. S.Fred Singer, "An Assessment of the Kyoto Protocol, Transcript from Panel Discussion, April 15, 1999, (1999) 11 Geo Int'l Envtl.L. Rev 767, B.D Santer *et al*., "Interpreting Differential Temperature Trends at the Surface and in the Lower Troposphere", (2000) 287 Sci 1231.Also Daniel Sarewitz &Roger Pielke, Jr, "Breaking the Global –Warming Gridlock" July 2000, Atlantic Monthly, 55, also available online at: http//www.theatlantic.com/issues/2000/07/sarewitz3.htm (Last visited on 29th March, 2004).

[22] Brian Wynne & Sue Mayer, *How Science Fails the Environment,* New Scientist, June 5, 1993 at 31 Vern R Walker, "The Siren Songs of Science: Towards a Taxonomy of Scientific Uncertainty for Decision Makers" (1991) 23 Conn .L.Rev.567.

[23]Canada, *Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada* (An expert Panel Report on the Future of Food Biotechnology Prepared by the Royal Society of Canada at the request of Health Canada, Canadian Food Inspection Agency and Environment Canada, January 2001, Chapter 8 at 197, available online at http/www.agbios.com/docroot/articles/2001035_A.pdf. (Last visited on 10th May, 2004). ["Canada, Elements of Precaution"].

[24]Emphasis supplied. See FCCC, *supra note* 1 at article 3(3).

[25]*Ibid*. Some less developed countries and states with economies in transition are also exempted from the requirement to place restrictions on emissions of GHGs.

[26]The Protocol *supra* note 1 at article 3(1).

Arguments exist to support the desirability of the DR Principle in international environmental agreements. For example, the DR Principle leads to environmental and economic justice by ensuring equity in international relations.[27] In the context of climate change, the DR Principle is argued to be fair because it leads to a situation in which the cost of preventing and or mitigating climate change is shared among countries that are historically responsible for creating it.[28] It can also be argued that the DR Principle promotes the idea of cost effectiveness which has been formulated as a basic consideration in implementing policies and measures to prevent climate change.

However, the situation whereby there is no restriction on GHG emission by developing countries undermines the preventative philosophy of the PP under the FCCC. Emission of GHGs without restraint by developing countries will lead to global warming.[29] Significant portions of GHG emissions from developing countries are attributable to multinational corporations of the developed world which operate in developing countries. Such multi-national corporations are often involved in oil exploration and production or in other activities which involve the utilization of fossil fuels. A situation whereby developing countries are required to place a limit on their emissions of GHGs on the basis of the PP will compel developing countries to enact national laws which will regulate the activities of these corporations with regard to emission of GHGs.

As developing countries account for a rapidly rising share of GHG emissions,[30] efforts of developed countries alone will not be sufficient to prevent climate change. Such

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[27]See generally, Cheng Zheng-Khang, "Equity, Special Considerations and the Third World"(1990) 1 Colombia Journal of International Environmental Law and Policy 57 at 61-63[Cheng Zheng - Khang, "Equity, Special Considerations"] .

[28]*Ibid*.

[29]*Ibid*. See also, Monica Brookman, "Equality Among Unequals in International Environmental Law", *supra* note 7.

efforts could easily be offset by developing countries' increasing emissions of GHGs, a situation permitted by the DR Principle.[31]

The potentially vast magnitude of climate change and the fundamental scientific uncertainties surrounding it make it imperative for the PP to be the watchword in the global effort to prevent climate change. The atmosphere reacts the same way to emissions from developed countries as it does to those from developing countries. The atmosphere is indivisible and the effect of emissions generated in one country is felt everywhere.[32] As a result, broad participation by all to prevent climate change is a long-term regulatory necessity. No one country has the capability to protect the global climate by its efforts alone.[33] Thus, developing countries should not be allowed to emit GHGs without restraint even in the short term, as there is a need for all countries to reduce their emission of GHGs in order to prevent and mitigate climate change. This view is supported by the fact that GHGs emitted today by developing countries are cumulative, long lasting and continue to lead to climate change regardless of efforts by developed countries that accept a limitation on their emission of GHGs. Accordingly, the differing obligations the FCCC and the Protocol place on developed and developing countries are unsatisfactory from the point of view of environmental protection.

The following analysis is based upon the following assumptions:

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[30]World Energy Council, "Statement to the Third Conference of the Parties to the UN Climate Convention" available online at http://www.worldenergy.org/wec-eis/publications/default/archives/other_documents/WECstmt1297.asp.(Last visited on 22nd February, 2004). See also Deborah E Cooper, "The Kyoto Protocol and China: Global Warming's Sleeping Giant" (1999) 11 Geo. Int'l Envtl. L. Rev. 401.

[31]Paul G Harris, "What's Fair? International Justice from an Environmental Perspective" available online at http://www.ciaonet.org/isa/hap01.html. (Last visited on March 31, 2004).

[32]See also Christopher D. Stone, "The Global Warming Crisis, if there is One, and the Law" (1989-1990) 5 Am. U. J. Int'l L & Pol'y 497 at 500.

[33]Edith Brown Weiss, "International Environmental Law: Contemporary Issues and the Emergence of a New World Order" (1993) 81 Geo L.J 706.

(a) The current regime for the control of GHG emission is not final. Accordingly, countries may, in due course, have an agreement as to the restriction that will be placed on developing countries in respect of GHG emission.

(b) The present level of GHG emission by some developing countries is not high but their future emission of GHG will lead to climate change.

Given the foregoing assumptions, the question may be asked as to why it matters that developing countries should be required to be bound by restrictions on their emissions of GHGs at this point in time when they may likely be required to restrict their emissions in due course. The answer to this question is simple. First, it is not yet certain that developing countries will agree to be bound by GHG emission restraints in the future. As of 2002, developing countries were united in their opposition to any suggestion that there should be commitment on their part to limit their emissions of GHG.[34] Some of these developing countries like China, India and Nigeria are home to corporations involved in oil exploration activities and rely on coal fired power plants which result in massive GHG emissions. Accordingly, it may seem ambitious to accept assumption (a) above.

Second, GHGs emitted today by developing countries, which are cumulative and long lasting and are not territorially specific, will lead to climate change in future. Developing countries are expected to account for 45% of worldwide GHG emissions by 2010 and some developing countries are expected to have greater growth in emissions than most developed countries. As a result, it is necessary to emphasize the need for developing countries to have restrictions on their emissions of GHGs immediately.

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[34] *Eighth Conference of the Parties to the U.N Framework Convention on Climate Change*, 42 Earth Negotiations Bulletin, No 209 available online at: <http//www.iisd.ca/linkages/download/asc/enbl2209e.txt (Last visited on 23rd May, 2005).

Chapter 1 of the thesis discusses the origin, meaning, and basic elements of the PP. It also discusses the emergence of the PP in international environmental law.

Chapter 2 focuses on the origin, meaning and some implications of the DR Principle. As well, the chapter discusses some aspects of the theoretical framework for the DR Principle. The relevance of this discussion is twofold. First, some of the arguments for and against the DR Principle can be distilled when the subject is viewed from a theoretical perspective. Second, placing the DR Principle within a theoretical context elucidates its meaning and wider implications.

Chapter 3 examines application of the PP and the DR Principle in the context of climate change. The chapter starts with a brief overview of the meaning of climate change and then briefly examines the international action as well as the international legal response to climate change. The provisions on PP and the DR Principle under the FCCC and the Protocol are then discussed. The chapter concludes with an analysis on the intersection of PP and the DR Principle and some consequences of applying the zero emission reduction aspect of DR Principle in the climate change regime.

Finally, Chapter 4 presents conclusions arising from the analysis outlined in the previous chapters of the thesis.

1 The Precautionary Principle in International Environmental Law

1.1 Introduction

This chapter will examine the origin, the meaning, and the importance of the PP. The basic elements of the PP and the emergence of the PP in international environmental law will conclude the discussion. The chapter is necessary in order to show that the conceptual basis of the PP is to prevent environmental harm before its occurrence regardless of the absence of scientific certainty about such harm. The sub-section describing the basic elements of the PP is included to provide an overview of steps involved in applying the PP. The discussion on the emergence of the PP in international environmental law shows that a majority of international environmental agreements adopt the PP.

1.2 Origin of the PP

It is generally recognized that the PP originates from the German word *vorsorgeprinzip* (hereafter referred to as "*vorsorge*''), which literally means foresight.[1] At the core of *vorsorge* is the belief that society should prevent environmental damage by careful planning in order to avoid potentially harmful activities. *Vorsorge* later developed in the early 1970s into a fundamental principle of German environmental law.[2]

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[1]Ronnie Harding & Elizabeth Fisher, "Introducing the Precautionary Principle" in Ronnie Harding & Elizabeth Fisher eds., *Perspectives on the Precautionary Principle* (Sydney: The Federation Press, 1999) 4 [Ronnie Harding & Elizabeth Fisher eds., "Introducing the Precautionary Principle"].

[2]By the early 1970's, the PP could be found in the domestic West German legislation in respect of environmental policies aimed at combating the problems of global warming, acid rain and maritime pollution. See W Gullet, ''Environmental Protection and the Precautionary Principle, A Response to Scientific Uncertainty in Environmental Management'' (1997) 14 EPLJ 52 at 55. See also, Arie Trouwburst, *Evolution and Status of the Precautionary Principle in International Law* (London: Kluwer Law International, 2002) 16-31.[Arie Trouwburst *Evolution and Status of the Precautionary Principle*].

At the time *vorsorge* appeared in Germany, environmental issues had assumed an important position in German society. As a result, there was a clear recognition of the discrepancy between statutory provisions and the goals of environmental policy on the one hand and the practical application of *vorsoge* on the other hand.[3] In response, *vorsorge* was incorporated into German law requiring that action must be taken before full scientific understanding of the relationship between human activity and environmental damage is known.[4] *Vorsoge* also requires the German government to promote technical developments and engineering solutions to reduce pollutant discharge levels and to contribute to the introduction of cleaner production technologies in the private sector.[5]

As a result of its success in German domestic law, the PP came to be accepted in international environmental law.[6] The first explicit reference to the PP in an international environmental agreement is found in the 1987 *London Declaration of the Second International Conference on the Protection of the North Sea*.[7] Since this conference, the PP has been included in several international and regional conventions and agreements, especially those which deal with activities for which there is no scientific certainty regarding environmental safety.[8]

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[3]S. Boehmer –Christiansen, "The Precautionary Principle in Germany-Enabling Government" in T O' Riordan and J Cameron eds. *Interpreting the Precautionary Principle*. (London: Earth scan Publications Ltd, 1994), 31. [S. Boehmer –Christiansen, "The Precautionary Principle in Germany-Enabling Government"].
[4]S. Boehmer –Christiansen, "The Precautionary Principle in Germany-Enabling Government" *ibid*.
[5] Ronnie Harding & Elizabeth Fisher eds., "Introducing the Precautionary Principle", *supra* note 1 at 4.
[6]*Ibid*.
[7]*Second International Conference on the Protection of the North Sea*, Nov. 24-25, 1987, 27.I.L.M 835 ("London Declaration").
[8]See for example, Annex 1 of Energy Charter *Treaty: The Draft European Energy Charter Treaty* I, Sept. 14, 1994, 27/ 94 CONF. 104, also *Convention on the Conservation of Migratory Species of Wild Animals*, June 23,1979, 19 I.L.M 11,15-16(entered into force Nov .1,1985), "*Convention on the Conservation of Migratory Species*."

1.3 Meaning and Importance of the PP

One of the most pressing challenges facing the international community today is maintaining a healthy environment.[9] This challenge can best be appreciated when weighed against the background that our common future depends on a healthy environment. The international community has given priority to this challenge by establishing various legal and institutional frameworks to address threats to the environment.[10] The PP is one such principle, aimed at minimizing the negative impacts of human interaction upon the biophysical environment.

The PP lacks a common definition. The ongoing evolution of the term has led to numerous interpretations of the PP.[11] Some interpretations say that the PP ensures the exercise of caution by insisting that where there is scientific uncertainty about the effect of an activity with potential risks on the environment, those who wish to engage in the activity should establish that it is safe before proceeding.[12] Other interpretations demand

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[9]See generally, M.K Tolba *et al*. eds., *The World Environment 1972—1992: Two Decades of Challenge*, (London: Chapman & Hall, 1992). For an examination of global environmental problems which need attention, see David A. Wirth, "Environmental Law: Trends in Legal Education and Scholarship: Teaching and Research in International Environmental Law" (1999) 23 Harvard Environmental Law Review 423.

[10]See generally, *United Nations Resolution on Institutional and Financial Arrangements, GA* Res. 2997 (xxvii), UN GAOR, 27th Sess., Supp. No 1, UN Doc.A/8783 (1972).

[11]Ellen Hey, "The Precautionary Concept in Environmental Policy and Law: Institutionalizing Caution," (1992) 4 Geo. Int'l Envt'l L.Rev. 303, (The meaning of PP is unclear).
Also R. Harding and L. Fisher, ''The Precautionary Principle in Australia: A Background Paper'' *Paper Presented at the Precautionary Principle Conference*, Institute of Environmental Studies, University of New South Wales, September 1999, 3, 5. (Defining PP with any degree of precision has proved problematic)

[12]Principle 15 of *The Rio Declaration on Environment and Development:*(June 14, 1992 31). Available online at http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm.(Last visited on 14th May, 2004) ("The Rio Declaration").For other examples of international treaties that adopted the PP thereby deviating from the traditional concepts of legal and scientific proof that call on parties to adopt decisions "based upon scientific findings or methods" see*, Convention on the Conservation of Migratory Species supra* note 8, Arts 111(2) and XI(3) (advocates ''action on the basis of ''reliable evidence, including the best scientific evidence available'') *UNESCO Convention on the Protection of the World Cultural and Natural Heritage*, Nov. 16, 1972, 27 u.st 37,40,11 I.L.M.1358 (entered into force July 15,1975); *Convention for the Conservation of Antarctic Seals*, June 1,1972, annex 7(a),11 I.L.M 21,261. (Entered into force Mar 11,1978); *International Convention for the Regulation of Whaling*, Dec 2, 1946, art v(2) 161,U.N.T.S 72.(Entered into force Nov 10,1948), amended Nov 19,1956,338 U.N.T.S 336, or "in the light

that in the event of scientific uncertainty, the onus lies on those who allege potential risk to establish that the activity is unsafe.[13] In addition, there are some formulations of the PP that merely require parties to apply the PP only when there is uncertainty about the effect of an activity on the environment "based upon scientific methods or findings."[14] These differences have led some to use the term "Precautionary Approach" rather than the PP to distinguish the fact whereas a Precautionary Approach merely requires parties to be careful about the effects of an activity on the environment, the PP expects such parties to take steps to prevent environmental degradation if there is a possibility of such harm. In other words, the PP requires a higher degree of caution than a Precautionary Approach.[15] Other commentators say that the term "Precautionary Approach" indicates that there is as yet no general acceptance of the idea of "Precaution" to merit labelling it as a principle.[16] Whether seen as a Principle or an Approach, the essence of Precaution is same. According to Freestone:

> The precautionary approach then is innovative, because it changes the role of scientific data. It requires that once environmental damage is threatened, action should be taken to control or abate possible environmental interference even though

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of knowledge available at the time" *I.L.O Convention (No 115) Concerning the Protection of Workers Against ionizing Radiation*, June 22, 1960, art. (3)(1), 431 U.N.T.S.41, 44. (Entered into force June 17, 1962).

[13]London Declaration, *supra* note 7.

[14]For example see*, Convention for the Conservation of Antarctic Seals*, June 1,1972, annex 7(a),11 I.L.M 21,261 (entered into force Mar 11,1978); *International Convention for the Regulation of Whaling*, Dec 2, 1946, art v(2) 161,U.N.T.S 72,(entered into force Nov 10,1948), amended Nov 19,1956,338 U.N.T.S 336, or "in the light of knowledge available at the time" *I.L.O Convention (No 115) Concerning the Protection of Workers Against Ionizing Radiation*, June 22, 1960, art. (3)(1), 431 U.N.T.S.41, 44 (entered into force June 17, 1962).

[15] "A Cautionary Tale: Fish Don't Lay Tomatoes, A Report on the Gene Technology Bill 2000", (Canberra, November 2000) available online at <http:www.aph.gov.au/Senate/Committee/clac_ctte/gene/report/index.htm.(Last visited on 7th April, 2004).

[16]Michele D Carter, "Selling Science under the SPS Agreement: Accommodating Consumer Preference in the growth Hormones Controversy" (1997) 6 Minn .J Global Trade 625,at 626. See also, David Wirth, "The Role of Science in the Uruguay Round and NAFTA Trade Disciplines" (1994) 27 Cornell Int'l L.J 818.

> there may still be scientific uncertainty as to the effects of the activities.[17]

Notwithstanding the differing interpretations, the PP is fundamentally a principle about how technology developers, regulators and persons should handle uncertainties when assessing risks associated with the effect of any activity on the environment. Accordingly, the PP is applicable to all policy instruments, which advocates that regulatory action ought to be taken to avoid the risk of environmental degradation even when there is incomplete, or no scientific evidence as to the magnitude or potential impact of such degradation.

The PP has attracted three major criticisms. First, opponents argue that adherence to the PP is unscientific and assumes the worst-case scenario on the basis of unfounded fears.[18] Second, they contend that the PP is unattractive because it focuses on unproven and sometimes baseless threats.[19] Third, opponents argue that the PP can stall innovation in that it inhibits economic and technological development.[20]

Although the criticisms have some merit, the PP seeks to avoid harm to the environment. Nevertheless, the criticisms have led to a situation whereby the influence of the PP is not strong.[21] Further, the influence of the PP has been adversely affected by

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[17]David Freestone, "The Road to Rio: International Environmental Law after the Earth Summit" (1994) 6 Journal of Environmental Law, 211.

[18]*Ibid* also Cass R Sunstein, "A Paralyzing Principle." Available online at http//www.cato.org/pubs/regulation/reg25n4/v25n4-9.pdf(Last visited on 20th March, 2004). [Cass R Sunstein, "A Paralyzing Principle"].

[19]*Ibid*.

[20]Bernard A Weintraub, "Science, International Environmental Regulation, and the Precautionary Principle: Setting Standards and Defining Terms" (1992) 1 New York University Environmental Law Journal 173. (Examining the nature, development and criticism of the principle, noting the difficulty in applying the principle while also promoting growth), [Bernard A Weintraub, "Science, International Environmental Regulation"].Also, Cass R Sunstein, "The Paralyzing Principle" *supra* note 18.

[21] Bernard A Weintraub, "Science, International Environmental Regulation" *ibid*. Cass R Sunstein, "A Paralyzing Principle", *supra* note 18.

failure of domestic and international instruments to provide details regarding its meaning and scope when they have incorporated it. For example, some formulations of the PP in international law fail to stipulate the type of measures that should be undertaken to operationalize it.[22] Likewise, domestic legislation frequently adopts the PP as an objective or goal, but then relegates it to a mere discretionary consideration or, at most, a guiding principle.[23] This has led to a situation whereby there is no precision in interpretation.

Generalized and sometimes vague statements of the PP in international instruments need to be defined to avoid ambiguities, inconsistencies and uncertainties.[24] Perhaps if the PP is given a common definition in international environmental agreements, countries will enact it as a binding rule in domestic legislation and its influence will be strengthened. Finally, the influence of the PP could be strengthened by educating decision makers as to its role.

For the purposes of this thesis, the PP is discussed in the sense in which it is formulated in the FCCC. The FCCC provides that "countries should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse impacts despite a lack of full scientific certainty as to such causes."[25] The above formulation of the PP recognizes that that the absence of scientific certainty shall not be used as a reason to postpone measures aimed at preventing climate change thereby accepting that it is better to err on the side of caution than to risk the effects of climate

[22]See for example, FCCC *supra* note 1 at article 3(3).
[23]See for example, Preamble to *Canadian Environmental Protection Act, S.C 1999 c.33* [*Preamble to CEPA*].
[24]See generally, James E Hickey & Vern R Walker, "Refining the Precautionary Principle in International Environmental Law'' (1995) 14 Virginia Environmental Law Journal 423. [James E Hickey & Vern R Walker, "Refining the Precautionary Principle"].
[25]FCCC, *supra* note 1 at article 3(3).

change. Accordingly, the PP represents a new legal response to the scientific uncertainties surrounding the environment's capacity to cope with increasing demands for prevention and/or mitigation of climate change.

1. 4 Basic Elements of the PP

In international environmental law, the PP defines the obligations of states with respect to the protection of the environment. The PP encourages states to act in anticipation of environmental harm in order to prevent its occurrence. The PP calls for action on early warnings when there is a possibility that an activity will lead to environmental harm even if the exact nature and magnitude of such harm is unknown. The PP therefore imposes a responsibility on originators of potentially harmful activities to thoroughly study and minimize risks, and to evaluate and choose the safest alternatives to meet a particular need. It also proposes that activities that are likely to cause harm to the environment should be avoided even where scientific evidence of their harmfulness is not conclusive.[26]

There are four basic elements involved in an analysis of the PP namely:

(i) identifying the risk;

(ii) making the decision to act or not to act;

(iii) deciding how to act, i.e the measures resulting from application of the PP; and,

(iv) reversing the burden of proof.

1.4.1 Identifying the Risk

Before applying the PP, a decision on how to determine risk must be made since scientific uncertainty about the risk of harm invokes the PP. Consequently, a rational

[26]W. Gullet, ''Environmental Protection and the ''Precautionary Principle'': A Response to Scientific Uncertainty in Environmental Management", (1997)14 Environmental and Planning Law Journal 52 [W. Gullet, "Environmental Protection and the Precautionary Principle"].

basis for assuming that risk exists is needed. This basis is derived from an evaluation of data relating to the risks. In practice, this step is often undertaken in conjunction with the decision to act.

1.4.2 Making the Decision to Act or not to Act

In some of its formulations, the PP is invoked when an established threshold of risk of environmental harm is met notwithstanding that the consequences of an activity cannot be fully demonstrated or quantified. Risk in this context may be defined as "the amalgam of the probability of an event occurring and the seriousness of the consequences should the risk occur."[27]

When considering whether precautionary measures are necessary to protect the environment, a scientific evaluation of the potential adverse effects of an activity is undertaken based on the available data. Where feasible, a risk assessment should consider the possibility of a hazard's occurrence and the severity of such a hazards impact on the environment, should it occur. Persons entrusted with the duty of enforcing the PP should be aware of uncertainty when adopting measures based on scientific assessment of risk. This is because the scientific data are not always sufficient to allow one to come to the conclusion of whether risk exists or not.[28]

It is only where the decision maker faces the dilemma of having to act or not to act that the PP is invoked. What factors influence the decision to act? Commentators have identified two degrees of confidence: a reasonable scientific possibility and a reasonable

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[27] J. Cameron, W. Wade-Gery and J Abouchar, "Precautionary Principle and Future Generations" in Emmanuel Agius *et al* eds., *Future Generations and International Law* (London: EarthScan Publications 1998), at 101.

[28] Canada, *Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada* (An expert Panel Report on the Future of Food Biotechnology Prepared by the Royal Society of Canada at the request of Health Canada, Canadian Food Inspection Agency and Environment Canada, January 2001, Chapter 8 at 197, available online at: http/www.agbios.com/docroot/articles/2001035_A.pdf. (Last visited on 10th May, 2004). ["Canada, Elements of Precaution"].

scientific probability.[29]A reasonable scientific possibility is said to exist when a conclusion is supported by available empirical scientific data even though some experts might disagree with such conclusion.[30] On the other hand, a reasonable scientific probability exists when there is a general consensus and acceptance of the methodology. In this case, there may not be unanimity of opinion, but certainly a majority opinion exists. The degree of confidence that should be invoked is determined on a case-by-case basis. From the point of view of environmental protection, however, the better approach appears to be that as soon as there is a reasonable scientific probability that an activity will have adverse consequences on the environment, the PP should be applied.

1.4.3 Deciding how to Act

As soon as a decision is made that a particular activity could have adverse consequences on the environment, action must be taken to prevent or at least mitigate those adverse consequences.[31] The action that may be taken in order to operationalize the PP differs depending upon the context. Some formulations of the PP offer little guidance as to the measures that should be taken when there is a risk of damage to the environment. For example, under Principle 15 of the *Rio Declaration*,[32] there is no stipulation as to how to control the risk or about what level of risk is acceptable. Similarly, the 1992 *Helsinki Convention on the Protection and use of Trans- Boundary*

[29]J.E Hickey Jr and V.R Walker, ‘‘Refining the Precautionary Principle” *supra* note 24 at 449.
[30]*Ibid*.
[31]See generally, J. Applegate, “A Beginning Not an End in Itself: The Role of Risk Assessment in Environmental Decision Making”, (1995) 63 University of Cincinnati Law Review 1643.
[32] The Rio Declaration, *supra* note 12.

Watercourses and International Lakes [33] requires parties to be guided by the PP but leaves them free to decide what action to take.

Other formulations of the PP do not make provisions for specific actions to be taken in order to operationalize the PP but they at least indicate considerations which should influence the choice of measures to be taken. For example the *Montreal Protocol on Substances that Deplete the Ozone Layer*[34] states that economic and social factors should be considered when invoking the PP.

Similarly, the FCCC requires parties who seek to apply the PP to consider cost effective measures that take into account different socio-economic contexts. The FCCC also requires measures be comprehensive to cover all relevant sources, sinks and reservoirs of GHGs and to comprise all economic sectors.[35]

1. 4.4 Reversing the Burden of Proof

In some of its formulations, the PP places the burden of proving the harmlessness of a given behaviour on the party who wishes to engage in the behavior.[36] This is often termed a reversal of the burden of proof. This policy is a departure from the traditional tort-oriented approach in which no harm is presumed to result from the activity of another until a party can demonstrate damage and causation.[37] Without the reverse onus, parties accused of degrading the environment are allowed to proceed with an alleged environmentally degrading activity until it is established that such an activity is indeed

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[33] *Helsinki Convention on the Protection and Use of Trans boundary Watercourses and International Lakes*: (*Convention on the Protection and Use of Trans boundary Watercourses and International Lakes*, Mar. 17, 1992, 31 I.L.M. 1312, 1316) ["Helsinki Convention"].

[34] See generally the preamble to *Montreal Protocol on Substances that Deplete the Ozone Layer* 26 ILM 1550 (1987) "Montreal Protocol".

[35] FCCC, *supra* note 1 at article 3.

[36] David Vander Zwaag, "The Precautionary Principle in Environmental Law and Policy: Elusive Rhetoric and First Embraces'' (1998) 8 J.E.L.P 355 at 359.

[37] See generally, Allen M. Linden, *Canadian Tort Law*, (Ontario: Butterworths, 2001) 450-1.

harmful to the environment.[38] In other formulations, such as that adopted in the FCCC, there is no clear suggestion about shifting the burden of proof. Despite the absence of a lack of suggestion about burden of proof in some formulations of the PP, as soon as a risk of harm is identified by a person who wishes to engage in a behaviour, the onus should lie on the person who disputes the existence of the risk to prove otherwise if precaution is truly the goal.

An issue closely related to the burden of proof is the standard of proof. In the context of litigation, standards of proof reflect the degree of confidence which society places in the accuracy of factual conclusions by allocating the risk of error between the litigants.[39] For example, in a criminal trial, the prosecution has the burden of proving beyond a reasonable doubt that the defendant engaged in the prohibited wrongdoing with the state of mind, if any, specified in the definition of the offence. In civil proceedings, however, the standard of proof is on a balance of probabilities. As a result, the parties share the risk of error equally.

The standard of proof required to apply the PP in international environmental law depends on the formulation. Some formulations of the PP merely require the existence of a threat of damage to the environment.[40] Other formulations of the PP for example in the context of climate change require that the threat of harm be serious or irreversible before the PP is invoked.

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[38]J. Cameron & J. Abouchar, "The Precautionary Principle: A Fundamental Principle of Law and Policy for the Protection of the Global Environment", (1991) 14 B.C Int'l &Comp. L. Rev. at 1 (the burden rests on the polluter on a balance of probabilities).
[39]*Ibid*.
[40]London Declaration, *supra* note 7.

1.5 Emergence of the PP in International Environmental Law

Despite the fact that the PP advances a progressive policy approach to environmental management, it is not a radical legal concept. Before its current popularity, international environmental law already addressed some aspects of the PP. For example, the preventative principle in international law obliges states to abstain from conduct which carries significant risk of reasonably foreseeable harm.[41] As a result, the PP might be viewed as an extension of existing legal obligations.

The innovative quality of the PP, however, lies in the fact that it requires prevention not only in situations where there is significant risk of harm but also in circumstances where there is uncertainty whether harm will result. Also, unlike the preventative principle which requires risk and causation to be scientifically proven, the PP extends the preventative requirement where there is scientific uncertainty. It is therefore correct to say that the PP is different from preventative environmental policy because it requires action even if the threat of harm is uncertain.[42]

The *United Nations Conference on the Human Environment* in Stockholm in 1972, which resulted in the passage of the Declaration on the Human Environment, ("the Declaration")[43] was probably the first official forum where the international community agreed that states are under a duty to prevent environmental harm from impacting their neighbours. Article 21 of the Declaration recognized the duty of states at international law to ''ensure that activities within their jurisdiction or control do not cause damage to

[41]G. Handl, "Environmental Security and Global Change: The Challenge to International Law" (1990) 3 Yearbook of International Environmental Law 22.
[42]L Gundling,''The Status in International Law of the Principle of Precautionary Action'' (1990) 5 Int'l Journal of Estuarine and Coastal Law 23 at 26.
[43]*United Nations Declaration on the Human Environment*, (1972) UN Doc.A/CONF.48/14, reproduced in (1972) 11 I.L.M.1416. See also, Simon Reeves, "French Nuclear Tests and the United Nations Conference on the Human Environment" (1973) 10 New Zealand Law Journal, 226.

the environment of other states or of areas beyond the limits of national jurisdiction.'' This declaration, which may be viewed as a precursor to the PP, can be interpreted to mean that states must act carefully so as to ensure that activities within their jurisdiction do not cause damage in other jurisdictions.

It was not until the late 1980s, however, that international legal circles witnessed the inclusion of the PP in a number of international treaties.[44] Although earlier mention was made to precautionary measures in the *Montreal Protocol on Substances that Deplete the Ozone Layer*,[45] statements of the *Second International North Sea Conference* in 1987 constitute the first true articulation of the PP in international environmental law. Ministers representing states that border the North Sea convened to limit the pollution of the North Sea. The final report of the conference stated:

> in order to protect the North Sea from possibly damaging effects of the most dangerous substances,… a precautionary approach is addressed which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence.[46]

The PP has since been incorporated into international agreements dealing with issues such as the control of trans-boundary movement of hazardous waste,[47]ozone layer depletion,[48] biodiversity,[49] and climate change.[50]

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[44]Charmian Barton, ''The Status of Precautionary Principle in Australia: It's Emergence in Legislation and as a Common Law Doctrine'' (1998) 22 Harvard Environmental Law Review 509. [Charmian Barton, "The Status of the Precautionary Principle in Australia"].
[45]Montreal Protocol, *supra* note 34.
[46]London Declaration, *supra* note 7. A New Ministerial Declaration was delivered at the Third International Conference on the Protection of the North Sea. *Ministerial Declaration of the Third International Conference on the Protection of the North Sea*, The Hague, Netherlands, March 8, 1990. Reprinted in Gunther Handl ed., (1990) 1 Yearbook of International Environmental Law ['The Hague North Sea Declaration"].
[47]Bamako Convention on Hazardous Wastes Within Africa, Article 4,Jan. 30, 1991, 30 I.L.M 773.
[48]Protocol on Substances that Deplete the Ozone Layer, article 4. Sept. 16, 1987, 26 I.L.M. at 1541 .
[49]Convention on Biological Diversity, Preamble, June 5, 1992, 31 I.L.M 818.
[50]FCCC, *supra* note 1 at article 3.

As a result of its adoption in a number of international environmental instruments, the PP has been described as the most central principle in international environmental law.[51] Also, international bodies have debated and endorsed the PP. An example of this is seen in the response to the threat of marine pollution at the fifteenth session of the United Nations Environment Programme (UNEP). The response from the session reads in part:

> …waiting for scientific proof regarding the impact of pollutants discharged into the marine environment may result in irreversible damage to the marine environment and in human suffering. [The Council] recommends that all governments adopt the principle of precautionary action as the basis of their policy with regard to prevention and elimination of marine pollution.[52]

According to some writers, the inclusion of the PP in a multitude of international instruments supports the conclusion that contemporary international law requires states to apply the PP.[53] As noted its adoption by a number of states in domestic legislation has also been used as a basis for contending that the PP is now part of customary international law.[54] Unfortunately, this may be an overstatement. While customary international law regarding the PP seems to be emerging and much progress appears to have been made at the international level regarding the application of the PP, the uncertainties in the meaning, application and implications of the PP make it difficult to

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[51]Harald Hohmann, *Precautionary Legal Duties and Principles of Modern International Environmental Law The Precautionary Principle: International Environmental Law. Between Exploitation and Protection,* International Environmental Law and Policy Series (London: Graham & Trotman/ Martinus Nijhoff, 1994).

[52]UNEP, "Precautionary Approach to Marine Pollution, Including Waste Dumping at Sea" UNEP Governing Council Decision15/27, U.N. GAOR, 44th Sess, Supp. No 25, at 17, U.N Doc A/44/25 (1989).

[53]J. Cameron, "The Precautionary Principle- Core Meaning, Constitutional Framework and Procedures for Implementation", Paper delivered at a conference on "The Precautionary Principle", 20-21 September 1993, Sydney, Institute of Environmental Studies, University of New South Wales.[J.Cameron, "Precautionary Principle-Core Meaning"].

[54]Arie Trouwburst, *Evolution and Status of the Precautionary Principle supra* note 2 at 284. See also Philippe Sands, "The ''Greening'' of International Law: Emerging Principles and Rules" (1994) 1 Global Legal Studies Journal, 295.

sustain the conclusion that the PP is a rule of customary international law.[55] The articulation of the PP in treaties and other international documents, however, shows that the PP does have a legally important core on which there is international consensus. Consequently, states cannot rely on scientific uncertainty to justify inaction when there is a possibility of risk of harm. It needs to be noted that the last statement may be qualified in some contexts depending on the formulation of the PP. This is because in the context of climate change, states can argue that they will not apply the PP on grounds that such application will not be cost effective so as to ensure global benefit.

1.6 Conclusion

The motive behind the PP is prevention of environmental harm before its occurrence. The importance of the PP can be appreciated in a context like climate change where countries are encouraged to join in a global effort to prevent or minimize the causes of climate change and mitigate its adverse effects.

As the discussion in the next chapter will show, the DR Principle is a means of encouraging countries to participate in international environmental agreements in order to prevent harm to the environment. Participation is sometimes achieved by exempting some countries from an obligation to protect the environment on grounds *inter alia* that such countries are not historically responsible for past environmental degradation.

[55]See generally, Government of Canada, "A Canadian Perspective on the Precautionary Approach/Principle-A Discussion Document" available online at: http://www.pco-bcp.gc.ca/raoics-srdc/docs/precaution/Discussion/discussion_e.htm.(Last visited on 29th March 2005). (Owing to absence of clear evidence of uniform state practice and *opinion juris,* Canada does not yet consider the principle to be a rule of customary international law).

2 The Differentiated Responsibility Principle in International Environmental Law

2.1 Introduction

This chapter will discuss the history, development and meaning of the DR Principle in international environmental law with a view to laying a foundation that will be helpful in the subsequent sections of the thesis. The discussion on the history, the meaning, and the development of the DR Principle will show that the DR Principle was developed to address the persistent inequality among states. The theoretical basis for the DR Principle evinces its meaning and wider implications. The sub-section detailing the justifications for and against the DR Principle analyzes some of the arguments used by commentators in contending that the DR Principle should or should not be applied in international environmental law.

2.2 History of the DR Principle in International Environmental Law

One of the fundamental principles of international law is the sovereign equality of states. Although this principle of sovereign equality lies at the root of international law, in practice, states are unequal in terms of technological advances, development, size, and population.[1] These factors, coupled with the acknowledgement that formal equality may in some cases have undesirable results, have led to attempts to devise schemes to address situations where the equal treatment of states does not appear to bring about just

[1]Edith Brown Weiss, "The Emerging Structure of International Environmental Law", in Norman J. Vig and Regina S. Axelrod eds., *The Global Environment*, *Institutions, Law and Policy* (Washington D.C: Congressional Quarterly, 1999) 98.

outcomes.[2] The differentiated responsibility principle ("DR Principle"), sometimes expressed as common but differentiated responsibility[3] represents one such scheme.

The origin of the DR Principle in international environmental law can be traced to a number of new states that attained statehood following the end of the Second World War. These states urged the adoption of preferential treatment measures in order to mitigate some of the consequences of colonialism.[4] The adoption of preferential treatment measures initially led to confrontation between developing and developed nations.[5] Developed countries eventually accepted preferential treatment and have become increasingly more willing to reconsider the issue of preferential treatment of states.[6]

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[2]Antonio Cassese, *International Law in a Divided World* (Oxford: Clarendon, 1986) 351[Hereinafter, Antonio Cassese, *International Law*].

[3]*United Nations Framework Convention on Climate Change* "FCCC" Available online at: http://www.Unfcc.Default.asp.int. (Last visited on 10th September, 2004). The word "common" suggests that certain risks affect and are affected by every nation on earth. These include not only the climate change risks but all risks related to global public goods including peace, public health etc. Responsibilities are said to be differentiated in that not all countries can contribute equally. Some nations ordinarily developed countries are charged with greater share of the burden than others, ordinarily the developing nations. See also Christopher D Stone, "Common But Differentiated Responsibilities in International Law" (2004) 98 A.J.I.L 278. [Christopher D Stone, "Common But Differentiated Responsibilities"].

[4]Philippe Cullet, *Differential Treatment in International Environmental Law* (London: Ashgate Publishing, 2003) at 17. [Hereinafter Philippe Cullet, *Differential Treatment*.]The call was for the establishment of a new international economic order which is based on the notion of differential treatment. See generally, *The Declaration on the Establishment of a New International Economic Order* G.A Res 320 1 (s-vi) 6 Special U.N GAOR Supp. (No.1) at 3 U.N Doc. A/9556 (1974). The foregoing can be compared to the history of the DR Principle in international Law generally, see Christopher Stone, "Common But Differentiated Responsibilities in International Law" *ibid* (the practice of differentiating responsibilities in multilateral international agreements can be traced to the treaty of Versailles, (1919) in which the ILO recognized that differences of climate, habits and customs, economic opportunity and industrial tradition make strict uniformity in conditions of labour difficult of immediate attainment). See also the Constitution of the ILO, June 28, 1919, Art 427, 49 stat.2712, 2733-34, 225 Consol T.S.188, 385. *The Programme of Action on the Establishment of a New International Economic Order* G.A Res 3202 (s-vi), 6(special) UN GAOR Supp. (No. 31) at 50 U.N Doc A/9631(1974). *The Charter of Economic Rights and Duties of States* G.A Res. 3281 (xxix), 29 U.N GAOR Supp. (No 31) at 50, U.N Doc A/9631 (1974) hereinafter "CERDS" Article 25 of CERDS (the world community should pay special attention to the needs and problems of the least developed among developing countries). Article 30 of CERDS (requires differential treatment in the context of state responsibility for protecting the environment).

[5]R.St. J. McDonald, "Solidarity in Practice and Discourse of Public International Law" (1996) 8 Pace Int'l L.R. 259.

[6]*Ibid* .See also, *The Stockholm Declaration of the United Nations Conference on the Human Environment* (1972) available online at http://www.unep.org/Documents/Default.asp. (Last visited on 10th Sept 2004).

Accordingly, the DR Principle emerged out of the desire to narrow the gap between developed and developing countries. It also arose from the acknowledgement that the peculiar circumstances of developing countries, namely, lack of sufficient technical expertise, regulatory and administrative efficacy, and economic capability, make it difficult, if not impossible, for them to comply with international environmental agreements in the same way as developed countries.[7] Consequently, provisions based on the DR Principle are now included in international agreements.[8]

2.3 Development of the DR Principle in International Environmental Law

The *United Nations Conference on the Human Environment*[9] provided a forum for the international community to express its opinion on the DR Principle. At that conference, developing countries like India and China refused to be held to the same obligations with regard to environmental protection as developed countries because they felt that such obligations would unduly burden their economies. It should be noted that these developing countries are major sources of environmental degradation. China for example is the source of significant GHG emissions through its coal fired power plants.

["Stockholm Declaration"]. Principle 23 therein contains a more generalized version of differential treatment. The declaration reflects the fact that different states have different values, the need to improve the standard of living in developing countries as well as the fact that developing countries face several disadvantages. See also, Philippe Cullet, *Differential Treatment*, *supra* note 4 at 17.

[7]Stockholm Declaration, *supra* note 6 particularly principle 6 therein (the special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable shall be given special priority), see also, Philippe Sands, "International Law in the Field of Sustainable Development: Emerging Legal Principles" in Winifred Lang ed., *Sustainable Development and International Law,*(London: Graham & Trotman Ltd, 1995) 63-4 (Philippe Sands, *International Law*). Daniel Barstow Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms" (1990) 1 Colo J. Int'l Envt'l Law and Pol'y 69 at 70. (The idea behind the DR Priciple is that developing countries need to channel the resources that they have towards remedying the domestic problems of poverty and disease. The governments of many developing countries are often in a state of rapid turmoil which prevents these countries from adequately addressing environmental concerns).

[8]See for example, principles 6 and 12 of Stockholm Declaration, *supra* note 6 also available in U.N Doc. A/CONF.48/14 (1972).Reprinted in 11 ILM 1416 (1972). [United Nations Conference on the Human Environment].

[9]*Ibid*.

Furthermore, developing countries argued that it would be unjust to accept such a burden given that developed countries were historically responsible for past environmental degradation.[10] Persuaded by this argument, the international community agreed that developing countries should receive differential treatment in international environmental agreements. Consequently, the *Stockholm Declaration of the United Nations Conference on the Human Environment* adopted the DR Principle. Principle 12 of the Declaration issued pursuant to this conference provides:

> resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate from their incorporating environmental safeguards into their development planning and the need for making available to them upon their request, additional international technical and financial assistance for this purpose.[11]

Principle 23 of the same Declaration goes on to provide:

> without prejudice to such criteria as may be agreed upon by the international community or to standards which have to be determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country and the extent of applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.[12]

Thus, the *United Nations Conference on the Human Environment* was the first forum wherein the application of the DR Principle to international environmental problems was recognized.

Consistent with the *Stockholm Declaration*, several ensuing multi-lateral environmental agreements began to differentiate between countries. For example, the

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[10]Karl Ohlsen, Reviewing Anita M Halvorssen's, "Equality Among Unequals in International Environmental Law: Differential Treatment for Developing Countries" (2000) 11 Colo. J Envt'l L & Pol'y 1 at 134.
[11]Stockholm Declaration, *supra* note 6.
[12]*Ibid*.

1982 *United Nations Convention on the Law of the Sea*[13] ("UNCLOS") requires parties to take into account the "circumstances and particular requirements of parties."[14] The *Montreal Protocol on Substances that Deplete the Ozone Layer*[15] gives less developed countries grace periods for compliance with its provisions and establishes a fund to provide them with incremental costs of implementation.[16] The DR Principle gained further prominence at the *United Nations Conference on Environment and Development* in 1992[17]which adopted the *United Nations Framework Convention on Climate Change* ("FCCC").[18]

An unambiguous adoption of the DR Principle by a multilateral international environmental agreement[19] is contained in the FCCC, which provides that:

> the Parties should protect the climate system… on the basis of equity and in accordance with their ... differentiated responsibilities and respective capabilities. [20]

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[13]*The United Nations Convention on the Law of the Sea*, ["UNCLOS"] is permeated with special privileges for developing nations. See Preamble to the *United Nations Convention on the Law of the Sea*, Oct 21, 1982, U.N Doc A/CONF. 62/122, (1981) reprinted in 21 I.L.M 1261 (1982) (opened for signature, Dec 10, 1982) see particularly Article 207(4) (in an endeavor to establish regional and global approaches, states shall take into account characteristic regional features, the economic capacity of developing states and their need for economic development). Article 202 (developed states to provide assistance to developing states) Article 203 (developing states shall be granted preference by international organizations in allocating funds and technical assistance and utilizing specialized services).

[14]*Ibid*. at article 202.

[15]The *Montreal Protocol on Substances that Deplete the Ozone Layer* available online at: http//www.unep.org/ozone/montreal-protocol/montreal-protocol2000.html. (Last visited on 10th September, 2004).

[16]*Ibid*. at article 5.1. Monica Brookman, "Equality Among Unequals in International Environmental Law" (2000) 25 Columbia Journal of Environmental Law, 369 at 373. [Monica Brookman, "Equality Among Unequals in International Environmental Law"]at 376 .

[17]*Proceedings of the United Nations Conference on Environment and Development,* (Rio De Janeiro, 1992), available online at http://www.pdhre.org/conferences/rio.html. (Last visited, on 23rd May, 2005).

[18] FCCC, *supra* note 3.

[19]Although it is frequently applied in international environmental agreements that involve developed and developing countries the DR principle is not limited to such agreements only. It has also been applied to treaties and other international instruments that are solely applicable to developed countries. For example before its repeal, the *E.E.C Large Combustion Directive No 88/609/EEC of 24th November 1988* on Limitation of Pollution of certain Pollutants into the Air from Large Combustion Plants, (Available online at http://europa.int/smartapi/cgi/sga_doc) (Last visited on 14th September, 2004).

[20]FCCC, *supra* note 3 at Article 3(1) See also principle 7 of the *Rio Declaration on Environment and Development* U.N Doc.A/CONF.151/5/Rev. 1(1992) reprinted in (1992)31 ILM 874. ["The Rio Declaration"].(States shall co-operate in a spirit of global partnership to conserve, protect and restore the

Article 3(1) provides the premise for differentiated obligations of countries with regard to the duty to prevent climate change.

The DR Principle does not apply universally to all international environmental agreements. For example, it finds no place in treaties dealing with ultra-hazardous activities like nuclear safety,[21] pollution from ships,[22] regulation of dumping at sea,[23] or trade in endangered species.[24] It is not clear why differentiation is not provided for in these instruments but there are a number of possible explanations. First, some international environmental agreements are of such a nature that the purpose of the convention is defeated if exceptions to its provisions are allowed. For example in the *Convention on Nuclear Safety*,[25] if a country were exempted from its mandatory provisions, the aim of the convention namely to legally commit participating states operating land-based nuclear power plants to maintain a high level of safety by setting international benchmarks to which States would subscribe, would be defeated because some countries will be exempted from this provision.[26] Second, a number of influential

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health and integrity of the earth's ecosystem. In view of the different contributions to global environmental degradation, states have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressure their societies place on the global environment and of the technologies and financial resources they command). Para 39.3(d) Agenda 21, available online at: www.sovereignty.net/p/sd/a21.(Last visited on 15th June, 2004). (States should when devising international standards, take into account, the different situations and capabilities of countries).

[21] *Convention on Nuclear Safety,* Vienna, Sept 20,1994, available online at: http://www.nti.org/db/nisprofs/fulltext/infcirc/safety/safetext.html, (Last visited on 8th November, 2004).

[22] *Convention on Prevention of Marine Pollution from Ships and Aircrafts,* Oslo, Feb 15, 1972, available online at : http://sedac.ciesin.org/entric/texts/marine.pollution.dumping.ships.aircraft.html (Last visited on 8th Nov, 2004).

[23] *Ibid*.

[24] *Convention on International Trade in Endangered Species of wild Fauna and Flora*, Washington D.C, March 3, 1973, (amended on 22nd June 1979), available online at: http://www.cites.org/eng/disc/text.shtml, (Last visited on 6th November, 2004).

[25] *Supra*, note 21.

[26] *Convention on Nuclear Safety*, *supra* note 22 at article 1 (the *Convention* on *Nuclear Safety* is aimed among other things at achieving and maintaining a high level of nuclear safety worldwide through the

countries are opposed to the idea of differential treatment in certain contexts.[27] As a result they oppose any attempt to impose the DR Principle in those instances.[28] Third, international environmental agreements that have uniform obligations are probably less expensive to organize and enforce.[29]

2.4 Meaning of the DR Principle in International Environmental Law

The DR Principle is inconsistent with the idea that all parties undertaking a common activity should be subject to the same rules. It differentiates between countries in determining the degree of responsibility that a country has in addressing and remedying an environmental problem.[30] It requires all states to participate in addressing environmental problems by adopting environmental standards, (commonality of responsibility) yet it provides for different obligations for countries taking into account factors such as their contributions to a particular environmental problem (differences in obligation).[31] The DR Principle requires countries to recognize that because of peculiar circumstances, countries at different stages of development have different capacities and

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enhancement of national measures and international co-operation including, where appropriate, safety-related technical co-operation).

[27] For example, the United States of America is opposed to the idea of differential treatment which exempts developing countries from the obligation to restrict their GHG emissions See *Letter to the Members of the US Senate on the Kyoto Protocol*, (March 13, 2001) 37 Weekly Comp. Pres Doc 11 hereinafter "Bush's Letter on Kyoto" also available online at: http//www.whitehouse.gov.(Last visited on 14th June, 2004).

[28] See also, Christopher D Stone, "Common But Differentiated Responsibilities" *supra* note 4 at 283.

[29] James E Krier, "On the Topology of Uniform Environmental Standards in Federal System and Why it Matters" (1995) 54 M.D.L Rev 1226 at 1230.

[30] Daniel Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms", (1990) 1 Co JIELP, 69. Daniel Magraw, "Legal Treatment of Developing Countries" (distinguishing different rules on DR Principle depending on the content). Lavanya Rajamani, "The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Change Regime" (2000) 9 RECEIL 120.

[31] Karin Mickelson, "South, North, International Environmental Law, and International Environmental Lawyers", (2000) 11 Int'l Envt'l L.Y.B 52, at 79.[Karin Mickelson, "South, North, International Environmental Law and International Environmental Lawyers"]. (The DR Principle is a reflection of the pragmatic acceptance of, and response to, the fact of differing levels of financial and technological resources available to countries in different economic circumstances and an acknowledgement of the historic, moral, and legal responsibility of developed countries to shoulder the burdens of environmental protection, just as it has enjoyed the benefits of economic and industrial development largely unconstrained by environmental concerns).

inevitably different levels and kinds of responsibility for dealing with international environmental issues. As a result, it allows for flexibility in how different categories of states with different situations can address specific environmental threats.

To incorporate the DR Principle, a treaty will normally provide a general framework applicable to all countries that are bound by the treaty and thereafter differentiate as to the level of specific commitments. The basis for differentiation is often to encourage reluctant countries to agree to be bound by provisions of the treaty so as to achieve effective action on issues of common concern. For example developed countries may have commitments that are not imposed on developing countries.[32]

The DR Principle is manifested in other ways in international environmental law. For example, different groups of countries may be given different timetables to implement a common commitment.[33] Treaties also include other DR mechanisms such as technology transfer and aid mechanisms, both of which serve to address the concerns of countries with less ability to implement the obligations imposed by the treaty.[34] For example, the *United Nations Convention on Biodiversity*[35] provides *inter alia* that "for the purposes of financing … consideration shall be given to the special situation of developing countries."[36]

[32]FCCC, *supra* note 3 at article 3.
[33]See Montreal Protocol on Substances That Deplete the Ozone Layer, *supra* note 16, article 5.1 therein allows longer implementation periods in favor of countries for which compliance with the instrument is more cumbersome.
[34]*Ibid*.
[35]31 ILM 818. Opened for signature on 5th June 1992, ["CBD"] See also the Preamble to UNCLOS, *supra* note 13 for reference to "special interests and needs of developing countries."
[36]CBD, *ibid* at article 20(5).

Sometimes, international environmental agreements do not expressly adopt the term "differentiated responsibility" but differentiate explicitly.[37]

2.5 Some implications of the DR Principle in International Environmental Law

In affirming the common responsibility of developed and developing countries for environmental protection sometimes, higher standards are explicitly set for developed states.[38] This practice is to encourage developing countries to commit to the idea of environmental responsibility. However, it implies that developed countries must assume a greater responsibility for environmental protection than developing countries.

Incorporating the DR Principle into international environmental law also requires developed countries to exercise leadership by example in an effort to prevent and/ or curb environmental pollution.[39]

The DR Principle can result in a situation of economic advantage to developing countries. Less demanding environmental obligations can encourage industries to relocate from developed countries to developing countries. The result may be job loss in developed countries and job creation in developing countries.

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[37]UNCLOS, *supra* note 14. See Generally, Proceedings of the 96th Annual Meeting of the American Society of Int'l Law, March 16, 2002."Common But Differentiated Responsibility" 2002 96 A.S.I.L Proceedings. (Remarks by Susan Biniaz).

[38]FCCC, *supra* note 3, articles 4(1)a (b), 12, (For differentiation of standards in respect of obligations expected of developed and developing states; developed countries are required to reduce their emission of GHGs, whereas developing countries are expected to take minor actions like creating inventories of their GHG emissions without being required to reduce their GHG emissions).

[39]The leadership principle under the FCCC links differentiation of emission control obligations to the leadership principle. It requires that developed countries policies and measures should demonstrate that they are taking the lead in modifying longer term trends in anthropogenic emissions. See the FCCC *supra* note 3 at article 4(2)(a). For recognition of the financial and technological components of the leadership principle in the context of climate change see FCCC, *supra* note 3, article 4(3) and preamble thereto (Developed countries to provide technological and financial support to aid developing countries efforts to address environmental problems).The most developed countries must provide the "agreed full incremental cost" of developing country treaty compliance including funds for the transfer of technology. Note that the FCCC did not explain what is meant "by taking the lead" but the structure of the specific obligations which developed countries assumed under the FCCC shows that they should take the first steps in respect of efforts to combat climate change and this could be interpreted as a fulfillment of the leadership principle envisaged in the FCCC. See also, David M. Dreisen, "Free Lunch or Cheap Fix?: The Emissions Trading Idea and the Climate Change Convention" (1998) 26 B.C Envt'l Aff. L.R. 5.

Unfortunately, the less demanding nature of environmental obligations imposed on developing countries by the DR Principle can also result in a situation whereby the economies of developing countries are encouraged to grow in an environmentally destructive direction causing their further environmental degradation.

2.6 A Theoretical Basis for the DR Principle in International Environmental Law

As noted, the principle of sovereign equality and the corresponding principle of legal equality of states are fundamental principles of international law.[40] These principles make countries legally independent from other states although each is recognized as equal. Several consequences flow from this. First, at least in theory, all countries maintain their sovereign right to internal self-governance. Second, one could argue that since states are equal in international law, they should have the same obligations.[41]

In practice, however, owing to huge differences among states, international environmental agreements differentiate between countries in order to address the imbalance.[42] Accordingly, one of the conceptual premises of the DR Principle in international environmental law is the existence of persistent differences in achievement between states. These differences also give rise to differential treatment.[43] Since one of the justifications (at least in theory) for differential treatment is the need to promote equality between countries, it stands to reason that the DR Principle is influenced by

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[40]Ian Brownlie, *Principles of Public International Law* 5th ed. (Oxford: Clarendon, 1998) 289.
Antonio Cassese, *International Law in a Divided World* (Oxford: Clarendon, 1986) 351
[Antonio Cassese, *International Law*].
[41]Michael Byers, *Custom, Power, and the Power of Rules-International Relations and Customary International Law,*(Cambridge: Cambridge University Press, 1999) 88.
[42]Antonio Cassese, *International Law*, *supra* note 40 at 43.
[43]Cf Devanesan Nesiah, *Discrimination with Reason, The Policy of Reservations in the United Staes, India and Malaysia* (New Delhi: Oxford University Press, 1999) 7.

equality concerns. Accordingly, a brief examination of the equality element of justice follows.

2.7 Justice

Some scholars have noted the impact of justice on international environmental regimes. [44] As well, commentators argue that international environmental negotiations are based on considerations of justice.[45] But what is justice? Justice has always been difficult to define and the promulgation of any definition is a task best left to philosophers. [46] However, this does not presuppose that international environmental lawyers are unable to inform their analysis with a working definition of the term. Consequently, this thesis adopts a broad understanding of the concept. Justice results when subjects of the law are treated in a similar fashion.[47] Based on the foregoing definition, it can be argued that the interest of justice would be served when countries have the same the benefits and burdens with regard to protection of the global environment.

Two consequences result from the foregoing proposition. First, states are posited as base units among which the benefits and burdens are to be allocated. This entails elevating traditional justice theory, which classifies individuals as the base units, to the level of interstate relations in which states constitute the base units and actors for counting benefits and burdens. Second, given that a crucial element of justice is

[44]For example, Paul Harris notes that "Considerations of international justice have been important parts of international environmental negotiations over the last twenty-odd years……provisions for Justice in conventions(eg. FCCC) include calls for new and additional funds and technology transfers on preferential terms to help developing countries develop in a sustainable fashion". See Paul G Harris, "What is Fair?; International Justice from an Environmental Perspective" available online at: http//www.ciaonet.org/isa/hap01.html (Last Visited, April 2, 2004),[Paul G Harris, "What is Fair?; International Justice from an Environmental Perspective"].

[45]Karin Mickelson, "Rhetoric and Rage: Third World Voices in International Legal Discourse", (1998) 16 Wis. Int'l L.J, 397.

[46]See generally Dennis Lloyd, *The Idea of Law,*(Middlesex: Penguin Books, 1981) at 117 [Dennis Lloyd, *The Idea of Law*] (Justice can be described as a moral value and one of the aims which man seeks to achieve in order to attain a good life).

[47]*Ibid*.

"equality," it is necessary to explore the types of equality in order to relate them to the DR Principle and determine which of them might be just.

The foregoing analysis leads to an important divide in justice theory between those who promote formal equality (equality of opportunity) as a just result on the one hand and those who promote substantive equality (equality of result) on the other hand.

2.7.1 Formal Equality as Justice

Formal equality posits that all subjects of the law should be treated in a similar fashion. This view of equality was stated in Aristotle's *Nichomachean Ethics* (Book V).[48] Formal equality treats every person who is classified as belonging to the same category for a particular purpose the same way.[49] It supports the application of rules on all subjects of the law in an unambiguous, identical fashion regardless of the outcome to individual subjects of the law. For example, if the right to vote at the United Nations General Assembly ("UN") is extended to all sovereign states which became independent before the formation of the body, the theory requires that all such states be equally entitled to the exercise of this voting right. Justice is not infringed by the exclusion of states which became independent after the formation of the UN from the list of voters, regardless of their status as states.

Formal equality theorists classify all sovereign states as being of equal worth.[50] They generally view as just a system in which all states are treated as equals. Accordingly, unequal treatment for any reason is unjustified. Based on formal equality,

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[48]St Thomas Aquinas, *Commentary on the Nichomachean Ethics* Vol.1trans. by C.I Litzinger, O.P, (Chicago: Henry Regnery Company,1964) at 381-2.[St Thomas Aquinas, *Commentary on Nichomachean Ethics*].

[49]*Ibid*. at 119. It should be noted that there are differences among approaches to formal justice. These differences often relate to the extent to which rules are to apply equally to all without distinction. For example, rules can be applied in unambiguously identical fashion to all regardless of the outcome of those rules to individual subjects of the law.

[50]*Ibid*.

all countries would be subjected to the same standards of compliance in respect of their obligation to protect the environment.

It is important to note, however, that formal equality is not a principle without qualification. It requires equality of treatment according to the classification stipulated in the rules. The UN example provided above illustrates this point in that the classification distinguishes between states that existed at the time the UN was created and those that emerged afterwards.

Formal equality theory is often attacked on grounds that it is unrealistic, impracticable, and cannot serve as a sufficient principle of justice because it is simply a condition for consistent application of any idea or rule.[51] Critics also say that formal equality does not often produce good results because of significant differences in characteristics and circumstances of individuals and groups.[52]

2.7.2 Substantive Equality as Justice

Philosophers who view formal equality as unjust espouse a different theory of justice. Substantive equality permits unequal treatment to the extent needed to achieve an equal overall result.[53] Advocates of substantive equality demand that rules take into account the differences among countries in order to avoid outcomes that are considered unfair.[54] Applied in the context of international environmental law, substantive equality supports the proposition that states need to be treated differently in order to attain the more important purpose: a more equal, just and equitably ordered world.

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[51] *Ibid*. at 119-120.
[52] *Ibid*.
[53] Dennis Lloyd, *The Idea of Law, supra* note 46, 122-3.
[54] *Ibid*.

Substantive equality is not a single theory but several theories that reflect the multiple types and sources of difference and a number of alternative or overlapping substantive ideals. One version of substantive equality allows for differentiation of responsibility among individuals in order to remedy the effect of past injustice.[55] In the context of inter-state relations in international environmental law, substantive equality looks beyond the issue of differentiation of responsibility and calls for financial assistance and technology transfer to developing states in order to aid their developmental efforts. The aim of each substantive equality approach is to allow for differentiation among countries that would ordinarily be treated as equals.

2.7.3 The DR Principle and Equality Theory

The DR Principle as applied in international environmental law is at cross-purposes with the notion of formal equality. This is because, unlike formal equality, which treats all countries in a similar fashion, the DR Principle treats countries differently by providing for different standards of compliance in respect to the obligation to protect the environment.

It is arguable in the context of international environmental law, that the DR Principle does achieve substantive equality between developing and developed states.[56] This is because substantive equality takes into account the differences among countries before allocating unequal responsibilities to them.

In some cases, it is important that formal equality be applied to countries in international environmental law. The example from the *Convention on Nuclear Safety*

[55] *Ibid*.
[56] See also, Philippe Cullet, "Differential Treatment in International Law:Towards a New Paradigm of Inter-State Relations" (1999) 10 Eur. J. International Law 549 at 551 (differential treatment seeks to foster substantive equality in the international community).

provided above illustrates this point. If some countries are exempted from the obligation to maintain a high level of nuclear safety through *inter alia* national measures, international co-operation, and ultimately safety related co-operation, the objective of the Convention will not be realized.

However, the importance of substantive equality in international environmental law cannot be over- emphasized. If formal equality is applied in all circumstances, the result will be undesirable. For example, if developing countries are required to commit to the same standard of environmental protection as developed countries and not encouraged to do so through incentives such as financial/technical assistance from developed countries, developing countries may never be in a position to meet these standards. In such an event, efforts by developed countries to protect the environment will be frustrated by environmental degradation that emanates from developing countries.[57]Given this, obligations that are imposed upon countries with regard to environmental protection should be referable to the desired outcomes.[58] There must be some role for factoring in overall outcomes when apportioning these obligations. Accordingly, the decision as to whether or not to apply formal or substantive equality in an international environmental agreement should only be made after considering the effect that the decision will have on the desired outcome from such agreement.

In the context of climate change, a DR Principle that aims to achieve the goal of climate change prevention/mitigation must consider the special circumstances of countries before allocating responsibilities to them in such a way as not to cause climate

[57]See generally, Anita Margrethe Halvorssen, *Equality Among Unequals in International Environmental Law, Differential Treatment for Developing Countries* (Boulder: Westview Press, 1999) at 3-4 and 28. (Discussing how equal treatment of countries differs from equitable treatment).
[58]*Case concerning the Continental Shelf, (Tunis/Libya)*, 1982 ICJ 18, 60 Para 71. (On the relationship between justice, equality and equity in international law).

change. This presupposes that such peculiar circumstances will justify an application of substantive equality in respect of efforts to prevent climate change. However, it will be a contradiction in terms if application of substantive equality leads to climate change. As a result, any application of the DR Principle, which exacerbates climate change, ought to be abandoned. However, those aspects of the DR Principle, such as the promise of financial assistance, technology transfer, debt forgiveness, which encourage countries to join in global efforts to prevent climate change, ought to be embraced.

2.8 Justifications for and against the DR Principle in International Environmental Law

Some commentators argue that the DR Principle creates "new problems in defining general state obligations in international environmental law."[59] Because differentiation is based on the classification of states as developed and developing, any problems in this classification process makes it impossible to apportion obligations between countries. As a result of this difficulty, some commentators say that differential treatment of developing countries should be restricted to the provision of financial and technical assistance and that none of those preferences should decrease the standard of care that is expected from a developing state with respect to the environment.[60] Protection of the environment is crucial and no country should be exempted from the standard of care expected in this regard.

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[59]Hans Christian Bugge, "International Environmental Law-Status and Challenges in Erling Selvig & Hans Christian Bugge eds., *International Environmental Law* (Oslo:Juridsk Forlag, 1995) at 59. Other critics argue that the DR Principle jeopardizes the very purpose of international environmental law see for example Gunther Handl, "Environmental Security and Global Change: The Challenge to International Law"(1990) 1 Y.I.E.L 10. (The dilution of normative demands on developing countries is likely to impede progress by those countries towards an adequate level local environmental protection, the acquisition of technological know-how and managerial ability on which sustainable development locally will depend).
[60]See generally, Daniel Barstow Magraw, "The International Law Commission's Study of International Liability for Non-Prohibited Acts as it Relates to Developing States" (1986) 61 Wash. L. Rev 1041 at 1054.

Another view argues that regardless of how serious environmental degradation currently is, because the developed states created the problems through their past industrial activities, they should be held responsible for remedying the problem. In other words, developing states should have an equal opportunity to pollute the environment before they are required to comply with environmental regulation.[61] The commentators who support this view also say that the DR Principle should be encouraged in view of the disincentives that developing countries face (eg that such agreements would curtail their development) when persuaded to agree to be bound by international environmental agreements.[62]

Accordingly, the debate on applicability of the DR Principle in international environmental law has tended to converge on its merits and demerits. However, commentators who argue in favour of its application are also concerned about the nature of obligations that should be imposed on developing countries.

A resolution of the issue as to applicability or otherwise of the DR Principle in international environmental law is important for at least two reasons. First, while it is generally agreed that developed countries played a major role in creating environmental problems,[63] there is also the opinion that such developed countries cannot protect the environment by their efforts alone.[64] Second, a number of developing countries are growing rapidly and such development will likely result in a situation whereby their own

[61]See generally, Fredrick C Stein, "Economic Implications of Trans frontier Pollution: National Prerogative and Attribution of Responsibility" (1986) 11 G.A J. Int'l & Comp L 519 at 536.Also Daniel Barstow Magraw, "The International Law Commission's Study of International Liability for Non-Prohibited Acts as it Relates to Developing States" (1986) 61 Wash. L. Rev 1041 at 1054. (Developed countries are the true source of environmental damage because they consume much more resources than developing countries). See also Daniel Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms", (1990) 1 Co JIELP 69.
[62]*Ibid.* See also section 2.8.2.4 below.
[63]*Ibid*.
[64]*Ibid*.

environmental degradation may surpass the pollution already caused by developed countries.[65]

2.8.2.1 The Historical Culpability of Developed Countries for Past Environmental Degradation

Historical culpability is arguably the most obvious reason for the existence of the DR Principle in international environmental law. It asserts that the responsibility for remedying an environmental problem should be assumed by those states that created the problem in the first place. Accordingly, since developed countries have historically been the ones exploiting the earth's resources and almost single handedly contributed to the current environmental degradation problems, they should be most responsible for solving it.[66] Likewise, since developing countries do not have the same historical culpability as developed countries, they should not shoulder as much burden as developed countries. Historical culpability is a form of compensation for historically accumulated ecological debts: industrialized countries should be blamed for the ecological damage they caused outside their territories and for their over-use of the ecosystem goods and services. It is arguable that historical responsibility is a variant of corrective justice because it seeks to

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[65] *Ibid*.

[66] S Chowdhury, "Common But Differentiated Responsibility in International Environmental Law: From Stockholm (1972) to Rio (1992)" in K. Gunther *et al* (eds.,), *Sustainable Development and Good Governance* (London Boston: Graham Trotman/M. Nijhoff, 1995) at 32-33. (Contribution to global environmental degradation being unequal, responsibility……..has to be unequal and commensurate with the differential contribution to such degradation). See also Andrew Hurrell and Benedict Kingsbury eds., *The International Politics of the Environment* (Oxford, Oxford University Press,1991) at 39. [Hurrel and Kingsbury, *International Politics of the Environment*] (as principal beneficiaries of past emissions, developed states should bear a disproportionate share of the costs). See also Anita M. Halvorssen, *Equality Among Unequals in International Environmnetal Law: Differential Treatment for Developing Countries* (Colorado:Westview Press, 1999) at 28. (The DR principle allows for exceptions in the name of fairness or reasonableness, "…since industrialized countries have done most of the polluting, it is only fair that developing countries be given leeway in environmental control measures.")

remedy harms that have been suffered in the past.[67] It is also a means of achieving substantive equality among states.

Differentiated responsibility based on historical culpability requires leadership from developed countries.[68] However, it proves difficult to apply in practice. It is often difficult for an international agreement to truly reflect the contribution of an individual state or group of states to an environmental problem.[69]

In addition, the consequences of culpability theory in some international environmental agreements (for example, agreements relating to climate change) support its rejection. First, notwithstanding moral culpability, it is at cross purposes to allow one segment of the international community to continue to be involved in an activity which leads to environmental consequences that other members should be striving to avoid. Second, the historical culpability theory assumes that compliance by developed countries alone would be sufficient to prevent environmental degradation. Such an assumption flies in the face of available evidence. Environmental degradation by developing countries continues to increase substantially;[70] future forecasts show significant increases in environmental degradation by developing countries, which are projected to equal or exceed that of developed countries.[71] Does it make sense to allow the possibility of exacerbation of environmental degradation on grounds that developed countries alone

[67]Christopher D Stone, *The Gnat is Older than the Man: Global Environment and Human Agenda* (New Jersey: Princeton University Press, 1993) at 250.
[68]Hurrell and Kingsbury, *International Politics of the Environment, supra* note 66 at 39.
[69] *Ibid*.
[70]Energy: Carbon Emissions Predicted to Increase Substantially by 2020, DOE Report Says (April 29, 1998) 21 Int'l Envt'l Rep (BNA) 439.
[71]Mark A Drumbl, "Does Sharing Know its Limits? Thoughts on Implementing International Environmental Agreements: A Review of National Environmental Policies, A Comparative Study of Capacity Building" (1999) 18 Va. Envt'l L.J 281 at 286.

should fix the problem?[72] From the point of view of environmental protection, the answer must be no. The climate is a shared resource that should be preserved for present and future generations.

Another problem with the culpability theory is that it does not permit the application of the PP in international environmental law. The culpability theory only apportions liability for past environmental degradation. As a result, it does not seek to prevent environmental harm before its occurrence.

Furthermore, the historical culpability theory focuses only on historical responsibility without addressing conceptual responsibility. Conceptual responsibility sets out the general principle that responsibility is dependent upon a state's ongoing as well as historic contribution to environmental problems. Conceptual responsibility leaves open the possibility for developing countries to assume a greater responsibility for environmental damage as their contributions to the problem increase. Conceptual responsibility is important because with developing states having an increasing population, greater landmass, and more development, the potential for them to cause damage to the environment is very high.[73] Conceptual responsibility has the flexibility to assign obligations to developing countries as their contributions to environmental degradation increase.

Applied in the context of climate change, conceptual responsibility would justify a DR Principle that sees all countries sharing some responsibility for climate change. This

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[72]Richard N Cooper, "Toward a Real Global Warming Treaty" (March/ April 1998) 77 Foreign Affairs 66, 68-69.

[73]For example, one study concluded that between 1800-1900, the developed countries cumulatively accounted for over 84% of all carbon dioxide emissions caused by fossil fuel burning and over 75% of carbon dioxide associated with deforestation, See Anup Shah, "Climate Justice and Equity" available online http/www.global issues.org/envissues/globalwarming/justice_asp. (Last visited on 17th March, 2004). See also preamble and article 3(1) of FCCC, *supra* note 3.

conceptualization of the DR Principle does not re-assign liability for climate change away from developed countries to developing countries. Instead, the responsibilities of developing countries increase over time in relation to their culpability. Unfortunately, the current articulation of the DR Principle in the FCCC and the Protocol assigns no liability to developing countries in the short term. We have yet to see whether this will change in the long run.

2.8.2.2 The Capability of Developed Countries to Remedy Environmental Damage

Another basis used by commentators to justify the application of the DR Principle in international environmental law is the capability theory. According to this theory, it is fair to consider who has the resources to address an environmental problem before apportioning liability. This theory recognizes that in practice, developing countries are often so pre-occupied with immediate, local environmental concerns, such as safe drinking water, providing arable land, indoor air quality and surging population, that they do not have the resources to bear the direct costs associated with attaining the abatement standards that are central to many multilateral environmental agreements.[74]

Accordingly, the ability of countries to respond to environmental problems is not equal. Countries that have the capacity to respond to environmental problems should take the lead. Afterall, the global environment is a shared resource that ought to be managed for the wealth and welfare of all the people of the earth. Developed countries have the technology, the expertise, and financial might to tackle environmental degradation

[74]Mark A Drumbl "Northern Economic Obligation, Southern Moral Entitlement and International Environmental Governance" (2002) 27 Colum. J. Envt'l L 363. See also, Principle 7 of the Rio Declaration, *supra* note 20.

problems while many developing countries do not have these resources at their disposal.[75] Developed countries are most able to protect the environment, thus they should assume the lion's share of responsibility to do so.[76]

As with differentiation based on a state's contribution to an environmental damage, differentiation based on capabilities can either be interpreted literally, requiring individual developed states to assume responsibility for environmental protection based on their capabilities, or it can be interpreted more widely so as to impose additional obligations on all developed states on grounds that based on their status as developed states, they have the capability to meet these obligations. The former appears to be a better interpretation. This is because the responsibility of countries for environmental protection should also be referable to the capability of the countries concerned.

2.8.2.3 Special Needs and Circumstances of Developing Countries

Another reason used to justify the DR Principle in international environmental law is that the international community should consider the special needs and circumstances of developing countries. This notion was recognized in the *Rio Declaration* as a relevant concept for future development of international environmental

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[75]See generally, Lynne M. Jurgielewicz, *Global Environmental Change and International Law: Prospects for Change in the Legal Order* (Maryland: University Press of America, 1996) at 142-143.This position has been recognized in some international environmental law regimes. For example the *Montreal Protocol on Substances* that *Deplete the Ozone Layer* recognized that developed countries have the financial ability to assist developing countries in their compliance with CFC reduction. This economic ability partially justified the creation of an international economic fund to help the developing countries reach the protocols goals. See Monica Brookman, "Equality Among Unequals in International Environmental Law" " (2000) 25 Columbia Journal of Environmental Law 369 at 373. [Monica Brookman, "Equality Among Unequals in International Environmental Law"].

[76]Cheng Zheng-Khang, '' Equity, Special Considerations, and the third World''(1990)1 Colombia Journal of International Environmental Law &Policy 57, [Cheng Zheng-Khang, ''Equity, Special Considerations''] Daniel Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms" (1990) I Colo J Int'l Envt'l L& Pol'y 69. See also Preamble to FCCC, *supra* note 3 (that the climate system should be protected by the parties in accordance with their respective capabilities.). Lynne M. Jurgielewicz, *Global Environmental Change and International Law: Prospects for Change in the Legal Order*, *ibid* at 142-143. See also, Daniel Bodansky, "Managing Climate Change" (1992) 3 YIEL 68.

law.[77] Unlike responsibility and capability assumptions, this justification for the DR Principle is premised on the recognition that providing an effective response to global environmental problems is not a priority of the developing countries.[78]As a result, obligations contained within some multilateral environmental agreements are differentiated.[79]

At times, differentiation based on responsibility could come into conflict with differentiation based on the need to consider the special circumstances of developing countries. This arises if the contribution of developing states to global environmental problems increases significantly and such countries remain in poorer socio-economic conditions than developed states. In such a case, a literal interpretation of differentiation based on responsibility for environmental damage suggests that developing states undertake some of those obligations previously undertaken by developed states. Differentiation based on the special circumstances of developing states alone will not look at the increased impact of activities from such countries, but rather at whether such countries still require preferential treatment because of their socio-economic status.

A reconciliation of this conflict should be based on the need to protect the environment. A developing country should not be exempted from a duty to protect the

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[77]Principle 6 of The Rio Declaration, *supra* note 20 which notes *inter alia* "… the special situation and needs of developing countries…should be given special priority."

[78]See for example the 21st preambular paragraph to the FCCC, *supra* note 3 which states that
"attaining sustainable economic growth and the eradication of poverty are the legitimate priority needs of the developing parties."

[79]See Principle 6 of the Rio Declaration, *supra* note 20.Also, U.N Doc. E/CN.17/1997/8: Report of the Sec Gen :Rio Declaration on Environment and Development: Application and Implementation (10th Feb 1997) Particularly Para 40 :
…the principle of special treatment of developing countries finds its elaboration in the recognition of differentiated responsibilities among countries, also principle 11 of the *Rio Declaration*
..states shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries particularly developing countries.

environment merely because of its special circumstance as a developing country. However, such special circumstances do justify an argument that developed countries should provide financial and or technical assistance to such a developing country to aid it in an effort to protect the environment from harm. The need to protect the environment is compelling because the international community is presently at a point where the environment may no longer be able to absorb further replication of past patterns of environmental degradation.

2.8.2.4 The DR Principle as an Incentive to Developing Countries

The existence of the DR Principle in international environmental law is often promoted on grounds that it provides an inducement to developing countries to participate in multilateral environmental agreements.[80] Proponents of the DR Principle argue that developing states often see very little immediate benefit in agreeing to environmental obligations. As a result, they often refrain from ratifying these agreements. However, by making provision for less demanding obligations and providing incentives such as technical transfers etc to developing countries, the DR Principle promotes ratification and compliance with international environmental agreements by developing countries. This helps to support universal participation.

Universal participation is crucial to the efficacy of most international environmental agreements.[81] Accordingly, in order to encourage developing countries to participate in such agreements, the developed countries must offer many forms of

[80]Anita Margrethe Halvorssen, *Equality Among Unequals in International Environmental Law, Differential Treatment for Developing Countries*, (Boulder: Westview Press, 1999) 4, [Anita Margrethe Halvorssen, *Equality Among Unequals in International Environmental Law*]. (The Montreal Protocol on substances that deplete the ozone layer, demonstrates the extent to which the use of differential responsibilities can promote universal participation in view of the fact that most developing countries in addition to developed ones have joined the Protocol).

[81]Monica Brookman, "Equality Among Unequals in International Environmental Law" *supra* note 75 at 377.

incentives including the transfer of financial resources, environmentally sound technology and technical aid programs.[82]

The need for broad participation in international environmental regimes is comparable to a general proactive approach of harm avoidance. What is being sought is the protection of the environment by avoiding potential and uncertain harm. This resembles the PP in that the international community does not need scientific certainty before taking action to protect the environment from harm. Accordingly, an argument can be made that a broad objective of the DR Principle is to promote the PP. The DR Principle permits developing countries to adopt environmental treaties more quickly and avoid an environmental harm before its occurrence.[83]

2.9 The DR Principle and the Notion of Formal and Substantive Equality

Can it be said that the DR Principle in international environmental law promotes formal or substantive equality between countries? Given that the DR Principle favours a situation whereby countries are not treated in a similar fashion, *prima facie* it promotes substantive equality between countries only if the result is equitable. However, this comment requires closer analysis, especially as some justifications for the DR Principle in international environmental law involves efficiency and equitable concerns regarding environmental protection.

As for efficiency, the core issue is whether developing countries are in a position to protect the environment in a consistent and satisfactory manner. If not, what use is there in delegating them the responsibility? As a result, the capability theory advocates

[82]See generally, Anita M. Halvorssen, *Equality Among Unequals supra* note 80 at 2-3.
[83]Mark A. Drumbl, "Poverty, Wealth and Obligation in International Environmental Law" (2002) 76 Tulane Law Review 922.

substantive equality between countries because it contemplates a situation whereby developing countries are not treated in a similar fashion as developed ones.

On the other hand, as an incentive to encourage developing countries to participate in international environmental agreements, the DR Principle could have the perverse effect of encouraging environmentally unfriendly behaviour among developing countries. Accordingly, pinning hopes on the use of exemptions as an incentive to encourage developing countries to participate in international environmental regimes may be misplaced.[84] However, substantive equality needs to be applied so as to encourage developing countries to participate in international environmental agreements including the FCCC and the Protocol. This can be achieved by means of financial and technical assistance programs instead of their outright exemption from the obligation to protect the environment. The level of assistance need not necessarily be based on the fact that activities from these countries are a threat to the environment. If this were the case, the PP could be ignored because countries that do not threaten the environment would be excluded. The level of assistance should be based on foreseeable harm from developing countries.

Application of the DR Principle solely on grounds of historical culpability and special needs and circumstances will also promote substantive equality among countries but it will have the unfortunate effect of discouraging developing countries from undertaking substantive environmental control measures. The relevance of this observation is underscored by the fact that concerns regarding the compliance of developing countries with their obligation to protect the environment are central to the

[84]Mark A Drumbl, "Does Sharing Know its Limits? Thoughts on Implementing International Environmental Agreements: A Review of National Environmental Policies, A Comparative Study of Capacity Building" (1999) 18 Va Envt'l L.J. 281.

success or failure of most international environmental regimes. Consequently, the DR Principle should be applied in international environmental law in a manner that would also protect the environment from harm.

2.10 Conclusion

There are several justifications for the application of the DR Principle in international environmental law. However, the aspect of the DR Principle which exempts some countries from commitments to protect the environment for whatever reason, needs to be re-examined in international environmental agreements including agreements relating to climate change. It is true that these exemptions can be used to achieve formal equality among developing countries. The exemptions can also result in substantive equality among developed and developing countries but they could have profound negative consequences on the environment resulting in a situation whereby the purpose of the agreement will not be realized.

3 The PP and the DR Principle in Practice: The Case of Climate Change

3.1 Introduction

The basis of the analysis in this chapter is to show that in some cases some aspects of the DR Principle do not promote the aims of the PP. Climate Change is used as a case study. The discussion on the meaning and severity of climate change, outlines the debate by scientists on the issue, and lends credence to the need to apply the PP to climate change.

The discussion on international action on climate change is an overview of the international response to the threat. It also reviewed the PP and the DR provisions in the FCCC and the Protocol. The aim of this discussion is to support the argument that some aspects of the DR Principle in the FCCC and Protocol are in conflict with the PP.

3.2 Meaning of Climate Change

Climate change refers to a variety of complex climatic changes that accompany an increase in the concentration of certain gases in the atmosphere known as greenhouse gases ("GHGs"). These gases are: water vapour, methane, chloro-fluorocarbons, carbon dioxide and nitrous oxide.[1] GHGs enable the earth to trap infrared radiation, which warms surface temperatures while at the same time permitting excess heat to escape. The earth must radiate energy away in an amount equal to that absorbed from the sun, if the surface temperature is to remain in balance.[2] GHGs at their natural level maintain such a

[1]See generally, Durwood Zaelke & James Cameron, "Global Warming and Climate Change, An Overview of the International Legal Process"(1989-1990) 5 Am. U. J. Int'l L. & Pol'Y 249. For a good scholarly discourse on the meaning of global warming as well as the scientific controversies about the likelihood of its occurrence, see, Daniel B.Botkin, "Global Warming: What It Is, What Is Controversial About It, and What We Might Do in Response to It" (1990-1991) 9 UCLA J.Envt'l L.&Pol'Y 123.
[2]Stephen H. Schneider, "The Greenhouse Effect: Science and Policy", (1989) 243 Sci.771. [Stephen H. Schneider, "The Greenhouse Effect"].

balance.[3] When there is an increase in the atmospheric concentration of GHGs, the earth receives slightly more energy than it radiates into space and this results in a rise in the temperature at the earth's surface leading to climate change.[4]

The threat of climate change poses enormous challenges to the international community because if no action is taken to prevent it, global temperatures and sea levels may rise resulting in adverse consequences to the environment.[5] Other potential adverse effects of climate change include increased desertification, meteorological instability, departure from historic agricultural conditions in many parts of the world, increased rainfall leading to increased pollution due to run off, as well as increased instances of heat stress leading to human respiratory illness in many nations.[6]

Some scientists have expressed growing concern about unusually warm temperatures and extreme weather events attributable to the increasing output of carbon dioxide and other GHGs into the atmosphere.[7] However, the scientific community does not unanimously accept that human induced climate change is occurring. Some scientists still doubt the existence of climate change, arguing that changes witnessed in the climatic patterns are normal fluctuations.[8] Opinion has also been expressed that the extent and

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[3] *Ibid*.
[4] *Ibid*.
[5] For an authoritative treatment of climate change science, effects and policy options, see, *Intergovernmental Panel on Climate Change 2001,* 3 Vols. (Cambridge: Cambridge University Press, 2001).David Boyd, *Unnatural Law, Rethinking Canadian Environmental Law and Policy* (Vancouver: UBC Press 2003) 83-4. [D. Boyd, *Unnatural Law*].
[6] Daniel Bodansky, ''The United Nations Framework Convention on Climate Change: A Commentary'' (1993) 18 Yale Journal of International Law 458-62 [D. Bodansky, ''Commentary'']. Andrew C. Revkin, "Artic Perils Seen in Warming" available online at: http://ww.nytimes.com/2004/10/30/science/earth/30artic.html, (Last visited on 5th January, 2005)
[7] Stephen H. Schneider, "The Greenhouse Effect" *supra* note 2.
[8] Fred Singer, "The Global Warming Debate: A Treaty Built in the Air .Not Scientific Consensus," *Wall Street* Journal 25th July 1997 A14 (Arguing that global warming is mostly a "phantom problem"). See generally, Tamara L.Harswick "2002 Yearbook: Comment: Developments in Climate Change", (2002) Colo. J. Int'l Envtl L & Pol'y 25 (the international community continued to debate the existence of

impact of climate change is not as severe and serious as some scientists want us to believe.[9] However, the vast majority of the world's scientists agree that there is discernible human influence that has led to climate change.[10] They also say that doubts as to the existence of climate change are baseless and warn that unless climate change is checked, humanity will suffer.[11] They recommend that action must be taken to limit or reduce atmospheric concentrations of GHGs on a global basis.[12]

3.3 International Action Regarding Climate Change

The Intergovernmental Panel on Climate Change ("IPCC") was established in 1988 under the auspices of the United Nations Environmental Programme and the World Meteorological Organisation to improve the understanding of the extent and potential implications of the increases in anthropogenic GHG emissions and to address climate issues.[13] The IPCC's mandate is to (1) assess the state of existing knowledge about the climate system and climate change, (2) assess the environmental, economic and social

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climate change as of 2002) [Tamara L. Harswick, "2002 Yearbook: Comment: Developments in Climate Change"].

[9] *Ibid*.

[10] D. Bodansky, Commentary *supra* note 6 at 456. See also, "Global Warming Worse than Feared" Available online at: http://news.bbc.co.uk/hi/english/sci/tech/newsid_996000/996115.stm. (Last visited on 1st March, 2004). For the view that greenhouse gases are accumulating in the Earth's atmosphere as a result of human activities leading to a rise in surface air temperatures and ocean temperatures, see National Academy of Sciences, "Climate Change Science, An Analysis of Some Key Questions" available online at: http://www4.nationalacademics.org/nashome.nsf.(Last visited on 23rd February, 2004). Intergovernmental Panel on Climate Change, "Summary for Policy Makers: A Report of Working Group 1 of the Intergovernmental Panel on Climate Change" available online at the United Kingdom Meteorological office Homepage : http://www.meto.gov.uk/sec5/CR<uscorediv/ipcc/WGI_SPM.pdf>.(Last visited on 3rd March, 2004). Robert T.Watson, Chair, Intergovernmental Panel on Climate Change, "Presentation at the Sixth Conference of the Parties on Climate Change" (November 13, 2000) available online at: http://www.ipcc.ch/press/sp_cop6.htm (Last visited on 3rd March, 2004).

[11] David Boyd, *Unnatural Law, supra* note 5 at 80-81 quoting Andrew Weaver The Canada Research Chair in Atmospheric Science in the School of Earth and Ocean Sciences at the University of Victoria who as saying ''Those of us who work in the area of climate change science are continually befuddled as to what the so-called debate on global warming is all about. There is really no scientific debate on the issue, only an artificial debate perpetuated by the media and certain corporate interests.'' See also Tom Athanasiou and Paul Baer, *Dead Heat:Global Justice and Global Warming* (New York: Steven Stories Press, 2002) 6.

[12] D. Boyd, *Unnatural Law supra* note 5 at 81.

[13] More information about the IPCC is available online at http://www.ipcc.ch. (Last visited on 3rd December, 2004).

impacts of climate change, and (3) prepare a report on its findings and possible response strategies.

The IPCCs first assessment report reviewed the state of existing knowledge on climate change.[14] It also considered the impact of climate change. It reflected an assessment of the science on climate change.[15] In this report, the IPCC concluded that anthropogenic emission of GHGs is increasing and that in the absence of specific policies to prevent climate change, there could be catastrophic consequences.[16] In addition, the IPCC predicted an increase of one degree Celsius in the global average temperature by the year 2005 if GHG emissions were not subjected to controls.[17] Although some scientists dispute the conclusions of the IPCC, there was a broad acceptance that the IPCC report provided evidence of the threat of climate change.[18] The IPCC report led to the negotiation of the United Nations Framework Convention on Climate Change "FCCC."[19]

[14]Intergovernmental Panel on Climate Change, available online at http://www.en.wikipedia.org/wiki/ipcc (Last visited on 21st January, 2004).
[15]*Ibid*.
[16]*Ibid.*
[17]The IPCC report was approved after a review process and it had a powerful effect on policy makers, thus providing a basis for negotiations on the FCCC. See Clare Breidenich, *et al,* ''Current Development: The Kyoto Protocol to the United Nations Framework Convention on Climate Change'' (1992) 98, American Journal of International Law, 315. [Clare Breidenich, *et al* ''Current Development''].
[18]Clare Breidenich, *et al* ''Current Development'' *ibid* at 316. As a result of the IPCCs findings, most scientists believe that human induced emissions of GHGs increase the heat absorbing capacity of the atmosphere and will result in a corresponding increase in the global average temperature. See also, Duncan French, ''1997 Kyoto Protocol to the United Nations Framework Convention on Climate Change'' *(*1998) 10 Journal of Environmental Law, 227 at 229. [D. French, ''1997 Kyoto''].
[19]For a full text of the FCCC, see 31 I.L.M 849.See also *Protection of the Global Climate for Present and Future Generations of Mankind, G.* A Res. 49212, UN GAOR 45th Session, 71st Plenary Meeting, Supp. No 49, at 147-49, U.N Doc.A/45/49 (1990). [''G.A Res.45/212''] (On influence of IPCC's report).

3.4 The International Legal Response to Climate Change

3.4.1 The United Nations Framework Convention on Climate Change

The FCCC, negotiated in response to a growing concern about the future of the earth's climate, contains a broad statement of principles and commitments in an effort to prevent, control or minimize human induced climate change. Under the FCCC, countries set the goal of achieving the stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous human induced climate change.[20] The FCCC is significant in at least two respects. First, it is the first international environmental agreement on climate change to be negotiated by a majority of countries of the international community.[21] Second, it is the foundation of worldwide efforts to combat climate change. Being an anticipatory response to human induced climate change, the FCCC is a framework for policy-making attempting to deal with the issue. Accordingly, the FCCC defines a common objective and contains provisions on basic guiding principles to help countries find an acceptable formula to address climate change.

The FCCC contains a wide range of provisions aimed at achieving its overall objective of "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[22] The focus of this thesis is on the provisions of the FCCC, which deal with the PP and the DR Principle.

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[20] *Ibid.* at article 2.
[21] P. Sands, *Principles of International Environmental Law*: Frameworks*, Standard and Implementation* (Manchester: Manchester University Press, 1995) 273.
[22] FCCC *supra* note 19 at article 2.

3.4.2. The PP in the FCCC

The FCCC explicitly incorporates the PP. In article 3 of FCCC, countries agreed:

> The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out co-operatively by interested Parties.[23]

The relevance of this provision cannot be over emphasized. It forms the basis to address the uncertainties surrounding climate change regardless of whether or not one believes that climate change is occurring or is likely to occur. The provision requires countries to take measures in order to prevent or anticipate or minimize the causes of climate change and mitigate its adverse effects. However, countries are expected to ensure that such precautionary measures are cost effective.

In furtherance of the PP, parties to the FCCC accepted a number of commitments. First, they are to formulate, implement, publish and regularly update national and, where appropriate, regional programmes containing measures to mitigate climate change.[24] Second, they are expected to promote and co-operate in the development, application and diffusion including transfer of technologies, practices and processes that control, reduce or prevent anthropogenic emission of GHGs.[25]

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[23] *Ibid* .at article 3(3).
[24] *Ibid* .at article 4 (1) (a).
[25] *Ibid*. at article 4(1) (c). See generally articles 4(1) d-2(e) for other similar commitments.

Further, in a bid to put in place measures aimed at preventing climate change, the FCCC establishes an administrative structure through the creation of a Conference of the Parties (''COP'') that meets annually.[26] The COP is expected to keep under regular review the implementation of the FCCC. The COP is also expected to periodically review any related legal instruments that it may adopt in order make the decisions necessary to promote effective implementation of the FCCC.[27] The COP is also expected to periodically examine the obligations of the parties and the institutional arrangements under the FCCC, in light of the objective of the FCCC, the experience gained and its implementation.[28] The establishment of the COP is a precautionary measure aimed at periodically assessing the progress made by parties in curbing climate change in order to address any shortcomings.

In light of the PP and in a bid to ensure the efficacy of measures aimed at preventing climate change, the FCCC also established two subsidiary bodies. The Subsidiary Body for Implementation is responsible for the assessment and review of the FCCC's implementation. The Subsidiary Body for Scientific and Technological Advice provides the COP with timely information and advice on scientific and technological matters relating to the FCCC.[29]

Thus the FCCC contains some provisions aimed at promoting the aims of the PP. It is interesting that the formulation of the PP in the FCCC urges countries to ensure that measures aimed at applying the PP takes into account among other factors, different socio

[26]*Ibid*. at article 7. Also Secretariat of the United Nations Framework Convention on Climate Change, ''Climate Change information Sheet 18'', available online at: http:unfcc.int/resource/iuckit/fact 21.html, (Last visited on 4th November, 2003.[Secretariat, ''Climate Change, Sheet 18''].
[27]The FCCC *supra* note 19 at article 7(2).
[28]*Ibid*.
[29]*Ibid*. at articles 9 and 10.

economic contexts. This requirement can be used as a basis for arguing that in implementing the PP, the DR Principle should also be considered. However, the FCCC also explicitly provides for the DR Principle.

3.4.3 The DR Principle in the FCCC

It is not surprising that the FCCC also contains provisions on the DR Principle. This is because during the negotiation process leading to the FCCC, the developing countries made it clear that they would not be parties to any agreement on climate change unless the provisions on differentiated responsibilities are entrenched in the agreement.[30] As a result, proposed voluntary commitments for developing countries were rebuffed because developing countries were afraid that even a mere agreement for voluntary stabilization of emissions would automatically diminish the contribution and compliance efforts to be made by developed countries.[31]

The first reference to the DR Principle in the FCCC is in paragraph 6 of the preamble to the FCCC which provides:

> Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions…

The significance of this paragraph cannot be over emphasized. As with every preamble, it lays out the intention of countries with regard to the FCCC, namely that climate change is a global problem that requires co-operation of all countries in accordance with the DR Principle.

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[30] Christine Batruch, "Hot Air as Precedent for Developing Countries? Equity Considerations" (1998-99) 17 UCLA J. Envt'l L &Pol'y 45. [Christine Batruch, "Hot Air as Precedent for Developing Countries? Equity Considerations"].

[31] *Ibid*.

Further, the first basic principle of the FCCC, Article 3(1) of the FCCC states:

> In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, *inter alia*, by the following:
>
> 1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof…

This provision seeks to guide the future implementation of the FCCC provisions as well as subsequent development of future standards. Accordingly, the DR Principle as provided for in the FCCC creates a roadmap, which the parties are bound to apply in an effort to mitigate human induced climate change.

In pursuance of the DR Principle, the FCCC divides countries into two groups, those that are listed in Annex I of the FCCC and those that are not (known as non-Annex I parties). Annex I parties are the industrialized countries who emitted most of the current concentrations of GHGs in the atmosphere. The FCCC calls on parties to take account of the specific needs and special circumstances of developing countries.[32] For example, Annex I parties are to stabilize their GHG emissions and assist other countries in meeting their commitment by offering them financial assistance and technology transfer. In this regard, paragraphs 4 and 5 of Article 4 of the FCCC Provides:

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[32]For example article 3.2 of the FCCC *supra* note 19. (The specific needs and special circumstances of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change, and of those Parties, especially developing country Parties, that would have to bear a disproportionate or abnormal burden under the Convention, should be given full consideration). See also article 4.4 of the FCCC. (The developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects). See also, Article 4.8 of the FCCC *supra* note 19 which requires developed country parties to take into account, the needs of such developing countries as small island countries as well as "those prone to natural disasters" or those "liable to drought and desertification").

> 4. The developed country Parties and other developed Parties included in Annex II shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.
>
> 5. The developed country Parties and other developed Parties included in Annex II shall take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly developing country Parties, to enable them to implement the provisions of the Convention. In this process, the developed country Parties shall support the development and enhancement of endogenous capacities and technologies of developing country Parties. Other Parties and organizations in a position to do so may also assist in facilitating the transfer of such technologies. [33]

Some countries known as countries with economies in transition are partially treated like developed countries because they are expected to stabilize their GHG emissions but they are also treated like developing countries in that they assume no financial obligations towards developing countries but instead can benefit from technology transfer from developed countries.[34] Developing countries assume neither stabilization commitments nor are they obliged to restrict their GHG emissions in any manner during the first commitment period.

Thus, the FCCC recognizes that all countries are responsible for climate change and should endeavor to limit the pollution that causes it. Following the DR Principle however, the FCCC does not require developing countries to reduce their emissions of GHGs. Instead, it requires developed countries to take the lead and restrict their emissions of GHGs consistent with the objective of the FCCC.[35]

The DR Principle is also reflected in the parties' commitments. Some of these commitments are as follows: to develop and submit national communications containing

[33] *Ibid* at articles 4 and 5.
[34] *Ibid*.
[35] *Ibid*. at article 4(2)(a).

inventories of greenhouse gas emissions by source and greenhouse gas removal sinks,[36] to formulate, implement, update and adopt national and where appropriate, regional programmes for mitigating climate change.[37] Parties are also expected to promote the sustainable management, conservation, and enhancement of greenhouse gas sinks and reservoirs,[38] and to take climate change into account in their relevant social, economic, and environmental policies.[39] These general commitments reflect the DR Principle because they are qualified in order to take account of the circumstances of the parties to the FCCC. Consequently, in carrying out their commitments, parties may "take into account their differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances."[40] The FCCC recognizes the financial and technical limitations of developing countries and their priorities of "economic and social development and poverty eradication."[41] As a result of this, the developing countries are required to take some minor actions (eg creating inventories for their GHG emissions) but are not required by the FCCC to reduce their GHG emissions. Even here, the assumption is that they will receive assistance from the developed countries to do so.[42]

In a bid to further operationalize the DR Principle, the FCCC requires that the specific needs and special circumstances of developing countries, which are particularly vulnerable to the adverse effects of climate change, and therefore would bear a

[36] *Ibid*. at article 4(1)(a).
[37] *Ibid*. at article 4(1)(a).
[38] *Ibid*. at article 4(1(d).
[39] *Ibid*. at article 4(1(f).
[40] *Ibid*. at article 4(1).
[41] *Ibid*. at article 4(7).
[42] *Ibid*. at article 4(7). (The extent to which developing country parties will effectively implement their commitments under the FCCC will depend o the effective implementation by developed country parties of their commitments under the FCCC related to financial resources and transfer of technology).

disproportionate or abnormal burden, be given full attention.[43] The FCCC also requires countries to co-operate in order to assist developing countries in meeting their obligations.[44] In making provision on the necessity of meeting the specific needs and concerns of developing countries, [45] the FCCC recognizes that the ability of a country to adapt to climate change and to mitigate GHG emissions depends upon its resources, standard of living, and the attitude of its people toward the environment.[46]

Despite the wide range of provisions and the progress, the FCCC is merely one step on a much longer road toward climate change mitigation.[47] For example, although the FCCC states that in order to stabilize atmospheric concentrations of GHGs at 1990 levels, it is necessary to reduce current levels of emissions from human activities by 60%, it is yet to be established that this percentage of reduction in GHG emission will be enough to prevent climate change.[48] Further, the commitments in the FCCC are of a preliminary nature. For example, although the FCCC establishes the key reduction obligations of developed countries, it contains no binding emissions targets or timetables. The specific ways in which the provisions of FCCC is to be actualized (which countries will lower GHG emissions and by how much) is left to subsequent agreements.[49]

3.5 The Kyoto Protocol

In order to achieve stabilization of GHG concentration in the atmosphere at a level that will prevent anthropogenic climate change, the FCCC provides for the negotiation of protocols that enhance the realization of the objective to reduce GHG

[43] *Ibid* at articles 2 and 3(2).
[44] *Ibid*.at articles 5 & 9.
[45] *Ibid*.at articles 3.2, 4.8,4.9.
[46] See also the Preamble to FCCC *Ibid*.
[47] Clare Brendenich *et al* ''Current Development'', *supra* note 18, at 317.
[48] See also Daniel Bodansky, ''Commentary'' *supra* note 6, at 451-458.
[49] The FCCC *supra* note 19 at articles 4 & 17.

emissions.[50] Since the FCCC came into force, there have been ten COPs. The most significant of the COPs was the Kyoto meeting where, on Dec 11 1997, the Kyoto Protocol[51] ("Protocol") to the FCCC was adopted. The Protocol is based on the need to achieve more concrete action on GHG emissions because it recognizes that emission reduction provisions outlined in the FCCC are not sufficient to limit the atmospheric concentration of GHGs.

Two defining features mark the Protocol. First, it imposes commitments on Annex I countries which are parties to the Protocol to reduce emissions of six GHGs collectively by an average of 5% below 1990 levels by the years 2008-2012.[52] Second, it highlights some commitments by Annex I countries. For example, they shall strive to implement policies and measures in such a way as to minimize adverse effects of climate change.[53] The Protocol provides a range of flexible instruments to help promote the implementation of those commitments.[54]

The Protocol is complex, reflecting the complicated political, economic and scientific issues raised by human induced climate change. Prior to adoption of the Protocol, there was intense politicking and as a result the document seeks to balance respective interests.[55] The adoption of the Protocol was an important step towards the

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[50] *Ibid*. at article 17.

[51] *Kyoto Protocol to the United Nations Framework Convention on Climate Change 1997*.UN Doc.FCC/CP/1997/7/Add.1. ["the Protocol"]. For a full text of the Protocol see 37 I.L.M 32. Anastasia Telesetsky, "The Kyoto Protocol" (1999), 26 Ecology L.Q. 797.

[52] The Protocol *supra* at article 3(1).

[53] *Ibid*. at article 2(3).

[54] For example the Clean Development Mechanism which provides for Annex I Parties to implement project activities that reduce emissions in non-Annex I Parties, in return for certified emission reductions (CERs). The CERs generated by such project activities can be used by Annex I Parties to help meet their emissions targets under the Kyoto Protocol. See the Protocol *ibid*. at article 12 , Emission Trading which will allow industrialised countries to buy and sell emission credits. Countries that keep emissions below their agreed target will be able to sell the excess emissions to countries that find it more difficult or more expensive to meet their own targets. See the Protocol *ibid*. at article 17.

[55] See generally, Duncan French, "1997 Kyoto Protocol" *supra* note 18 at 231.

mitigation of climate change although some feel that many of the provisions represent the views of developed countries.[56]

As of April 29th, 2005, 150 states and regional economic integration organizations have deposited instruments of ratifications, accessions, approvals or acceptances of the Protocol. Nigeria ratified the Protocol in November 2004,[57] China ratified earlier on July 30, 2002 while India's ratification followed on August 6, 2002.[58] Despite their ratification of the Protocol, as developing countries under the Protocol, Nigeria, China and India are not bound to reduce their GHG emissions during 2008-2012. However the ratification of these countries can be interpreted as evidence of agreement on their part that there is a need for a global effort to prevent climate change.

To enter into force, the Protocol underwent a two-step ratification process. First, fifty-five parties had to ratify the Protocol, and second, the ratifying parties had to represent countries that have at least fifty- five percent of global carbon dioxide emissions.[59]

It is believed that the Protocol will strengthen the international response to climate change because it contains legally binding emission targets for industrialized countries, a measure aimed at reducing and reversing the upward trend in GHG emissions.[60] This belief was re-iterated at the COP ("The COP 10") held in Buenos Aires- Argentina between 11 and 17th December, 2004. The COP-10 concluded with an emphasis that

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[56] *Ibid*.
[57] Dan Ede, *Nigeria Ratifies the Kyoto Protocol on Climate Change*, This Day Newspaper,3rd Dec, 2004, available online at http://thisdayonline.com/view.php.(Last visited on 3rd Dec, 2004).
[58] Tamara L. Harswick, "2002 Yearbook: Comment: Developments in Climate Change", *supra* note 5 at 25.
[59] The Protocol *supra* note 51 at article 25. See also, Kyoto Protocol: Status of Ratification, Available online http:www.unfcc.com/resource/kpstats.pdf.(Last visited on 20th Nov, 2004).
[60] Climate Change information sheet 18, available online at http:unfcc.int/resource/iuckit/fact 21.html, (Last visited, 24th August 2003).

climate change remains the most vital global challenge to humanity and that its adverse effects are already a reality in many parts of the world.[61] Many parties also emphasized the need to provide support to developing countries in an effort to curb the adverse effects of climate change.[62] Also, countries re-affirmed their resolve to prevent anthropogenic climate change and stated that an adherence to the commitments in the Protocol will help in this regard.[63]

The Protocol contains provisions, which affirm the PP and the DR Principle. There are also references in the Protocol to how these principles will be operationalized by countries.

3.5.1 The PP in the Protocol

The preliminary point must be made that the Protocol does not contain express provisions, urging countries to take precautionary measures in order to prevent climate change. However, some of its provisions are aimed at achieving this objective.[64] Also, the preamble to the Protocol affirms that the protocol will be guided by article 3 of the FCCC, which clearly adopts the PP.[65]

In order to put in place measures to prevent climate change, article 2 of the Protocol contains policies and procedures that Annex I parties shall implement in order to ensure a reduction in their emissions of GHGs. Some specific policies and measures include: enhancing energy efficiency; protecting and enhancing GHG sinks and reservoirs; promoting sustainable agriculture; and, encouraging reforms to lower GHG

[61] See generally, Secretariat, Framework Convention on Climate Change Press Release, " Milan Conference Concludes as Ministers Call for Urgent and Coordinated Action on Climate Change" available online at: http//www.unfcc.int, (Last visited on December 31, 2004).
[62] *Ibid*.
[63] *Ibid*.
[64] For example the provision on policies and procedures, see Protocol *supra* note 51 at article 2. See also article 9.
[65] *Ibid.* at Preamble.

emissions.[66] However, parties are required to implement these measures in accordance with the DR Principle (in accordance with their national capabilities).[67]

Article 3 of the Protocol manifests the PP. It binds Annex I parties either individually or jointly to meet an agreed limitation target in respect of six GHGs. The agreed limitation is known as quantified emissions reduction and limitation objective ("QERLO").The QERLO varies among individual developed countries with developing countries assuming no emission limitations. The first paragraph of article 3 establishes that the central purpose of meeting the individual QELROs is to achieve the overarching objective of lowering emissions of GHGs to 5% below 1990 levels by the target date of 2008-2012. In pursuance of this goal, each Annex I country's binding emission level is set forth in Annex B of the protocol. For example, the EU has an 8% reduction, while Japan and Canada agreed to a 6% reduction of GHGs from 1990 levels. The use of different targets among developed countries is also a manifestation of the DR Principle. To the extent they accommodate differences between developed countries, these targets achieve some measure of substantive equality. Unfortunately, the text of the Protocol does not make it clear as to the basis for imposition of differing targets among developed countries.

In order to ensure compliance with its target, each Annex I party must also establish a national monitoring system by 2007.[68] Article 9 allows for a periodic review of the protocol. Periodic review is a necessary precautionary step because it allows the COP to take appropriate steps in response to changing scientific knowledge.

[66] *Ibid*. at article 2.
[67] *Ibid*.
[68] *Ibid*. at article 5.

In an attempt to ensure that measures are in place to prevent climate change in the future, the Protocol requires countries to put modalities in place for the adoption of environmentally sound technologies and to take all practicable steps to ensure appropriate financing. [69] The parties must also adopt policies for the effective transfer of environmentally sound technologies that are publicly owned or in the public domain and for the creation of an enabling environment for the private sector to do the same.[70] The motive behind these provisions is not in dispute. They are meant to achieve the aims of the PP so as to prevent climate change before its occurrence.

3.5.2 The DR Principle in the Protocol

The history of the DR Principle in the Protocol can be traced to the first COP in Berlin. At that conference, countries agreed to the Berlin Mandate whereby developed countries pledged to act first to reduce their GHG emissions before requiring developing countries to do so.[71] The Berlin Mandate affirms that implementation of the FCCC shall be guided *inter alia* by the DR Principle.[72] The Berlin Mandate also reminds countries that they are required to consider the special needs and circumstances of developing countries and that:

> The largest share of historical and current global emissions of greenhouse gases has originated in developed countries, and that the per capita emissions in developing countries are still relatively low and that the share of global emissions originating

[69] *Ibid*. at article 10(c).
[70] *Ibid.*
[71] See generally, *Report of the Conference of the Parties on its First Session, Held at Berlin from 28th March to 7 April 1995,* Addendum, Part Two, Action Taken by the Conference of the Parties at its first session, UNFCC. Ist Sess, UN Doc. .FCCC/CP/1995/7/Add.1 (1995) ["Berlin Mandate"].Also available online at http//www.unfcc.de/resource/docs/cop1/07aol.pdf. (Last visited on 14th May, 2004). In signing the Berlin Mandate, developed countries agreed to act first in reducing GHGs before developing countries would be required to do same. The Berlin Mandate specifically stated that there would be no new commitments for developing countries in the first commitment period.
[72] *Ibid*. at article 1(1)(a).

> in developing countries will grow to meet their social and development needs.[73]

Further, the Berlin Mandate states:

> The global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective way and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions"[74]

This sentiment continued when the protocol was negotiated. Accordingly, negotiations for the Protocol were premised on the DR Principle.[75]

In conformity with the DR Principle and in affirmation of the Berlin Mandate, the Protocol does not require developing countries to agree to new commitments to limit their GHG emissions. Accordingly, the Protocol is devoid of reference to commitments by developing countries. Instead, it affirms the DR Principle: all parties must take into account, "their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstances without introducing any new commitments for parties not included in Annex I"[76]

The Protocol contains express provisions which incorporate the DR Principle. First, the Protocol divides parties into groups namely, Annex I which includes the developed countries, some countries in central and Eastern Europe as well as the newly independent states that resulted from the soviet breakup, Annex II namely, the organization for economic co-operation and development countries.[77]

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[73] *Ibid*. at article 1(1)(d).
[74] *Ibid*. at article 1(1)(e).
[75] Paul G Harris, ''Common But Differentiated Responsibility: The Kyoto Protocol and the United States Policy''[1999] 7 New York University Environmental Law Journal 33 [Paul G Harris, ''Common But Differentiated Responsibility''].
[76] The Protocol, *supra* note 51 at article 10.
[77] *Ibid*.

Furthermore, the Protocol differentiates within the group of developed countries with respect to how far below 1990 (if at all) their emissions targets should be.[78] The use of targets (among some developed countries) by the Protocol based on emission levels of countries affirms the DR Principle because it imposes different standards on countries which are classified as developed. It means, for example that if country A (a developed country) is to reduce its emission level by 10% from its emission level of 160 tons, country A would be allowed to emit 144 tons, while country B (another developed country) which agreed to reduce its emission level of 200 tons by 10% from the year before would be allowed to emit 180 tons of GHGs.

It should be noted that although some developed countries have emission limits and are expected to make some progress towards their assigned limits by 2005,[79] a few developed countries such as Australia, Norway and Iceland are not bound by such restrictions. The later group of countries are entitled to increase emissions due to peculiar economic and other factors.[80] This position is regrettable because it allows those developed countries to continue to emit detrimental quantities of GHGs.

The Protocol shows a commitment to climate change prevention because it recognizes the need for speedier implementation of existing commitments. It states that all parties should formulate and implement programmes to mitigate climate change and measures to facilitate adequate adaptation, especially in regards to "energy, transport and industry sectors as well as agriculture, forestry and waste management."[81] Ironically, the

[78]The Protocol, *supra* note 51 at article 2 (on policies and procedures that Annex 1 parties shall implement in order to meet their quantified emissions limitation and reduction limits and minimize climate change effect on developing countries).
[79]*Ibid*. at article 3(2).
[80]*Ibid*.at annex 1.
[81]*Ibid*. at article 10(b) (i).

Protocol rejected the imposition of new commitments for developing country parties.[82] It re-affirms the DR Principle, the national and regional development priorities of developing countries and their desire for increased technological and financial assistance. It states that developing country parties are to be helped in re-affirmation of existing commitments through further technical and financial assistance.

In relation to financial assistance, the Protocol re-confirms the DR Principle by requiring that developed countries provide new and additional financial resources to meet the agreed full costs incurred by developing parties in preparing national inventories, as part of the obligation.[83] Developed countries are also required to "provide such financial resources needed by the developing country parties to meet the agreed full incremental costs of advancing the implementation of some existing commitments."[84]

The Protocol has been criticised on grounds that even if its targets are achieved, there will be little effect on climate change.[85] Also, the exemption of developing countries from commitments to limit the emission of GHGs means that they have been authorized to continue to emit detrimental amounts of GHGs.[86]

Notwithstanding these criticisms, many believe that the Protocol is a necessary step towards mitigation of climate change.[87] As stated, it was negotiated to address the

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[82] *Ibid*. at article 10 (all parties taking into account their common but differentiated responsibilities and their specific national and regional development priorities, objectives and circumstance, without introducing any new commitments for the parties not included in Annex I but reaffirming existing commitments and continuing to advance the implementation of these commitments in order to achieve sustainable development, taking into account article 4, Paragraphs 3, 5 and 7 of FCCC).

[83] *Ibid*. at article 11(2)(a) .

[84] *Ibid*. at article 11(2)(b).

[85] Roger Sedjo, "Post Kyoto: Bush's Next Steps on Climate Change" available online at http//www.rrf.org/rrf/publications/weathervane/features/2001/post-kyoto-bushes, (Last visited on 12 December, 2003). See also,Lakshman Guruswamy, "Climate Change: The Next Dimension"(2000) 15 J. Land Use &Envtl. Law, 341 [Lakshman Guruswamy, "Climate Change"].

[86] See generally, C Stevens, "Interpreting the Polluter Pays Principle in the Trade and Environment Context" (1994) 27 Cornell Int. L.J 577.

[87] Worldview Climate Change: Bonn Talks Close with Little Resolved, Green wire, June 15, 1998 at 19

inadequacies of the FCCC, in an effort to globally confront climate change. The Protocol also shows that the international community is united on the issue of climate change.

3.6 The DR Principle and the PP in the Climate Change Context

The provisions of the PP and the DR Principle in the FCCC and the Protocol support the propositions that while the PP is based upon the need to prevent the threatened effects of climate change, the DR Principle is grounded, *inter alia*, on the need to prevent climate change as well as notion of fairness in adopting preventative measures. The PP seeks to prevent the effects of climate change by encouraging countries to co-operatively address the issue. It also outlines how countries should approach situations where the facts relating to the possibility of climate change are not fully settled. Accordingly, it requires countries to take measures to anticipate, prevent or minimise the causes of climate change.

The DR Principle just like the PP encourages countries, based on their capabilities, to take measures in order to prevent climate change. This creates differential norms of compliance: binding obligations to limit GHG emissions are dependent on a country's status as a developed or developing country. Developed countries must also transfer funds and technology to developing countries and are expected to assist them in order to facilitate their efforts to reduce GHG emissions. This dichotomization of responsibilities, whereby countries are asked to contribute resources to the global effort to curb climate change based on their status as developed or developing countries creates differential norms of contribution.[88] The operationalization of the DR Principle also

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World Resources Institute, "WRI President calls Kyoto Protocol a Historic step for Humankind" Dec 11, 1997available online at:<http://www/wri.org/wri/press/kyoto_nr.html>? (Last visited on 23rd May, 2005).

[88]See generally, Michael Weisslitz, "Rethinking the Equitable Principle of Common But Differentiated

imposes different levels of responsibility on developed countries with regard to environmental protection. For example before the United States of America ("the US") withdrew from the Protocol, it was required to reduce its emissions more than Canada.[89] On the other hand, the US, the largest source of GHGs and the wealthiest economy in the world, is required to reduce its emissions on a percentage basis by less than the EU. This is so despite the fact that EU citizens produce fewer GHGs in the aggregate and less per capita than the Americans.[90] Similarly, despite the fact that most developed countries are required to reduce their emissions, Australia (which is yet to ratify the Protocol) is permitted to increase its emissions by 8%.[91] This difference is ostensibly based on national circumstances but in reality, reflects political bargaining in the Kyoto process.[92] This is, during negotiations leading to adoption of the Protocol, Australia won a right to increase its GHG emissions to secure its support for the Protocol.[93]

It is easy to appreciate the motive behind the DR Principle in the climate change context. Drafters of the FCCC and the Protocol believed that since the participation of a majority of countries was crucial to the success of global effort aimed at preventing climate change, differentiated obligations was a means of encouraging reluctant countries to participate in a global effort to prevent climate change.[94] They reasoned that the DR Principle promoted fairness in that as developed countries are responsible for the majority of past emissions of GHGs and also have the capacity to control them, they should

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Responsibility: Differential Verus Absolute Norms of Compliance Contribution in the Global Climate Change Context" (2002) 13 Colo J. Int'l Envt'l &Pol'y 473. Hereinafter Michael Weisslitz, "Rethinking the Equitable Principle of Common But Differentiated Responsibility."

[89]See Protocol, *supra* note 51,Annex B.

[90]See World Resources Institute *et al*, World Resources (1996) 315 at 319.

[91]See Protocol, *supra* note 51 at annex 40.

[92]Paul G Harris, Common But Differentiated Responsibility, *supra* note 76 at 35.

[93]See "Australia rejects Kyoto Pact" Available online at: http://news.bbc.co.uk/1/hi/world/asia-pacific/2026446.stm (Last visited on 4th June, 2005).

[94]FCCC, *supra* note 19 at Preamble and articles 3 and 4.

assume the lions share responsibility for climate change prevention.[95] This is not, however the crucial point. Participation by developing countries (which can be achieved by means of financial assistance, technology transfer and other aid mechanisms) is necessary for the success of climate change prevention. However, such participation can only be effective if developing countries agree to limit their emission of GHGs. The success of international efforts aimed at preventing the consequences of climate change will ultimately depend upon the ability of countries to refrain from emitting detrimental amounts of GHGs.

The total exemption of developing countries in the FCCC and Protocol from even voluntary commitments, deviates from the aims of the PP, and could have catastrophic consequences. The exemption of developing countries from commitments to restrict emission of GHGs can be interpreted as authorizing them to continue emitting detrimental amounts of GHGs.

In addition, there are fears that as a result of the DR Principle, developing countries will have an unfair economic advantage over developed countries in that they will not be facing the same environmental restrictions.[96] This could lead to a situation whereby companies which rely heavily on fossil fuel for their operations move away from developed to developing countries in order to take advantage of the relaxed environmental regulations.[97] Also, it is possible that GHG emission controls will raise the cost in developed countries of manufacturing those goods whose production requires

[95] *Ibid* . See Preamble to the Protocol, *supra* note 51. See also Vincent Cusack, "Perceived Costs versus Benefits of Meeting the Kyoto Target for Greenhouse Gas Emission Reduction: the Australian Perspective" (1999) 16 Environmental Law and Planning Law Journal, 55.
[96] Paul G Harris, Common But Differentiated Responsibility *supra* note 76 at 37. See also, Senate Resolution 98, 105th Congress. 143 Cong Rec. s8138-39 (daily ed. July 25, 1997).
[97] *Ibid*.

the burning of fossil fuels.[98] Industries in developing countries such as China, India and Brazil gain an advantage over industries in countries that adhere to emission controls. Having invested in production facilities as part of their economic development, developing countries may in turn be reluctant to accept emission control measures that threaten such activities.[99] Admittedly, a way out of this problem may be to encourage cleaner or alternate technology in developed countries which may then be exported to developing countries. However, this proposed solution can only be effective if developing countries also internalize environmental control measures.

Some commentators support the lack of restrictions on the emission of GHGs in developing countries on grounds that it will help them to develop and strengthen their economies.[100] They argue that owing to special needs and circumstances of developing countries, it would be unfair to expect them to limit their economic development in the same manner as developed countries. In other words, the economies of developing countries cannot thrive if they are subject to the same binding GHG emission targets as developed countries.[101] This argument appears convincing partly because it is consistent with one of the theories which justifies the DR Principle (special needs and circumstances of developing countries). However, the exemption of developing countries from even voluntary commitments to restrict GHG emissions could result in further

[98] Michael Weisslitz, Rethinking the Equitable Principle of Common But Differentiated Responsibility *supra* note 88 at 473.

[99] Henry D Jacoby *et al*, "Kyoto's Unfinished Business" (1998) 77 Foreign Affairs 54. See also, Richard B Stewart, "Environmental Regulation and International Competitiveness" (1993) 102 Yale L.J 2039 (in order for economies of developing countries to be able to effectively compete on an international level, equal rules and regulations must apply to developing as well as developed states. If developing states were allowed to direct their industries in an environmentally destructive direction, drastic changes would need to be enforced by the time their economies had already become significantly entrenched).

[100] Paul G. Harris, "Environment, History and International Justice" (July, 1997) 40 J.Int'l Stud at 1

[101] Daniel Barstow Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms" (1990) 1 Colo J. Int'l Envt'l Law and Pol'y 69, 70. [Daniel Barstow Magraw, "Legal Treatment of Developing Countries"]. Michael Hart & Bill Dymond, "Special Treatment and Differential Treatment and Doha "Development" Round" (2003) 37 J. World Trade 395.

problems by focusing heavily on economic and social, as opposed to environmental and health concerns thereby ignoring the severity of the climate change problem. Such exemption also ignores the fact that developing countries are encouraged to grow their economies in an environmentally destructive direction by virtue of this policy.

The international community accepted the proposition that the PP must be applied in the climate change context because climate change prevention is preferable to remedial measures after its occurrence. Regrettably, the exemption of developing countries from voluntary commitments to emit GHGs deviates from the aims of the PP. By ignoring the conceptual responsibility of developing countries for climate change, such exemption will exacerbate climate change. The evidence suggests that GHG emission by developing states is on the increase.[102] It is estimated that developing countries will emit more GHGs than developed countries in the next few years.[103] Accordingly, the potential for developing countries to cause human induced climate change is high.[104] The case of China, which is considered a developing country under the climate change regime, is illustrative.[105]

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[102]Gunther Handl, "Environmental Security and Global Change, The Challenge to International Law" (1990) 1 Y.B Int'l Envt'l Law 3-4.[Gunther Handl, "Environmental Security and Global Change"].Christine Batruch, "Hot Air as Precedent for Developing Countries? Equity Considerations" *supra* note 30 at 45.

[103]Mark A Drumbl, "Does Sharing Know its Limits? Thoughts on Implementing International Environmental Agreements: A Review of National Environmental Policies, A Comparative Study of Capacity Building" (1999) 18 Va Envt'l L.J 281, 286. Henry Shue, "After You: May Action by the Rich Be Contingent Upon Action by the Poor?" (1994) 1 Indiana J. Global Legal Stud 343 at 365.Walter V Reid & Jose Goldenberg, " Are Developing Countries already doing as much as Industrialized Countries to slow Climate change"?(1997) 26 Energy Pol'y 233. Also, Christine Batruch, "Hot Air as Precedent for Developing Countries? Equity Considerations" *supra* note 30 at 45 (while the total emissions in developing countries are still relatively low, their emissions are expected to surpass those of the developed world by 2020 under a normal growth scenario. Delaying or limiting developing countries reduction would cause an increase in green house emissions, thereby seriously compromising the stabilization objective of the FCCC).

[104]*Ibid*. at 50.Paul G Harris, Common But Differentiated Responsibility *supra* note 76 at 38. See also Daniel Bodansky, "Managing Climate Change"(1992) 3 Yearbook of International Environmental Law 71.

[105]James Harding, "China Emerging as Bad Boy in Pollution Stakes" Fin Times, Dec 9, 1997 at 4.

As of 1998, China emitted 14% of the world's GHGs as compared to 22% emitted by the United States at the same period.[106] These emissions contribute to smog, acid rain and climate change within China and around the world.[107] China is now the world's second largest emitter of GHGs and is expected to surpass the United States in a few years.[108] In comparison to Canada and the United States, China's *per capita* energy consumption is expected to rise with future economic development and rising standards of living causing GHG emissions to increase as well. If the predictions associated with energy consumption are accurate, China's annual emissions could rise to 2380 metric tones of carbon by the year 2020, with the total of GHG emissions in the order of 3.2 billion tons by 2025[109] with corresponding negative consequences on the climate.[110]

China continues to emit GHGs without restraint because it is classified as a developing country in the climate change regime. Regrettably, despite complaints by some developed countries, the central government in China has over the years, continued to encourage emission of detrimental amount of GHGs. It exempts power plants from

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[106]See generally Deborah Cooper, "The Kyoto Protocol and China: Global Warming's Sleeping Giant" (1999) 11 Geo. Int'l Envt'l L.Rev 401 at 404-407. [Deborah Cooper, "The Kyoto Protocol and China: Global Warming's Sleeping Giant"]. (Examining the vast impact that China is predicted to have on emissions of GHGs and arguing that as China continue to grow, her emissions of GHGs will increase dramatically and would perhaps exceed that of developed countries). See also Tauna M. Szymanski, "Taming the Dragon Heads: Controlling Air Emissions From Power Plants in China-An Analysis of China's Air Pollution Policy and Regulatory Framework" (2002) 32 Envt'l L. Rep 11, 439. [Tauna M. Szymanski, "Taming the Dragon Heads"] Chen Fu. "The SO2 Control Strategy in China" *Workshop on the Feasibility of Using Market Mechanisms to Achieve Sulfur Dioxide Emissions Reduction in China*. Beijing, Nov. 15-18, 1999:6, [China Climate Change Country Study] (Coal fired power plants which generates about two thirds of China's energy are the leading source of air pollution in china today contributing up to massive sulfur and carbon dioxide emissions.).

[107]McElroy, Michael. "Industrial Growth, Air Pollution, and Environmental Damage." *Energizing China: Reconciling Environmental Protection and Economic Growth*. Cambridge MA: Harvard University Press, 1997: 241-26.

[108]Nielson, Chris P. and Michael B. McElroy. "Introduction and Overview.", *Energizing China: Reconciling Environmental Protection and Economic Growth*. (Cambridge MA: Harvard University Press, 1997) at 27.

[109]Deborah Cooper, "The Kyoto Protocol and China: Global Warming's Sleeping Giant"*supra* note 102 at 407 Tauna M. Szymanski, "Taming the Dragon Heads" *supra* note 106 at 439.

[110]Homer Sun, Note, "Controlling the Environmental Consequences of Power Development in the People's Republic of China" (1996) 17 Mich. J .Int'l L, 1015 at 1037.

environmental regulations that might hinder the development of its energy sector.[111] Consequently, despite China's minimal contribution to GHG emissions in the past, her current emissions forecast a bleak situation.

The inability to extract commitments to reduce GHG emissions from developing countries has resulted in some countries withdrawing from the Protocol thus defeating the aims of PP. For example, the US withdrew from the Protocol partially because of a lack of commitment by developing countries to reduce GHG emissions.[112] The withdrawal from the treaty by the world's largest emitter of GHGs means that the US will not be bound by obligations negotiated in the Protocol. It can also be interpreted to mean that the US does not accept all aspects of the leadership role they are expected to exercise with respect to the global effort to prevent climate change.[113]

Despite these concerns, developing countries are opposed to the idea of mandatory commitment by them to reduce GHG emissions. They argue that economic development is a necessity while environmental protection is a luxury that they cannot afford. [114] Accordingly, at the eighth conference of the parties (COP-8) in 2002, the parties formulated a declaration that does not impose any future commitment on

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[111]Tauna M. Szymanski, "Taming the Dragon Heads"*supra* note 106 at 440. (Emissions of GHGs which exceeds standards set up in regulations are not considered legal violations under current law).See also, Dasgupta, Susmit, Mainul Hug and David Wheeler, "Bending the Rules: Discretionary Pollution Control in China" World Bank Policy Research Department Working Paper, Feb. 1997 3.

[112]Another reason is the present administration's determination not to accept any measure that could undermine the US economy. See *Letter to the Members of the US Senate on the Kyoto Protocol*, (March 13, 2001) 37 Weekly Comp. Pres Doc 11 hereinafter "Bush's Letter on Kyoto" also available online at <http//www.whitehouse.gov. (Last visited on 14th June, 2004), see also, Lavanya Rajamani, "The Principle of CBDR and the Balance of Commitments under the Climate Regime" (2000) 9 Rev Eur Comm & Int'l Envt'l L 120.

[113]Christopher C. Joyner, "Burning International Bridges, Fuelling Global Discontent, the United States and Rejection of the Kyoto Protocol" (2002) 33 Victoria U. Wellington L. Rev 27.

[114]Lakshman Guruswamy, "Climate Change *supra* note 86 at 364. It appears however that the position of developing countries on the necessity of economic development at the expense of environmental protection is becoming fractionalized. See also Cheryl Hogue, "Climate Change: Once Solid Developing Country Bloc Dividing into Five or More Factions" (1998) 21 Int'l Envt'l Rep (BNA) 1201.

developing countries to agree to emission targets or to reduce their current emissions of GHGs.[115] Instead, the declaration merely calls on all countries to ratify the Protocol in the face of growing evidence of the damage done by climate change.

The position of developing countries is understandable. It is indisputable that in most developing countries, problems of poverty, famine, and social unrest appear more challenging than the negative consequences of climate change. These problems make it difficult, if not impracticable, for most developing countries to put in place stringent measures to tackle the daunting problem of climate change in the same way as developed countries. Developing countries have a right to development affirmed in the FCCC as a right to sustainable development requiring each party to "take into account that economic measures are essential to adopting measures to address climate change."[116] This recognizes that a formal equality approach placing similar obligations on developed and developing countries would yield undesirable results. Accordingly, an argument can be made that from a moral perspective, an urgent and undeniable imperative exists that the standard of living of the world's poorest countries be improved.

However, prevention of climate change is crucial. This can only be achieved if all countries are encouraged to take steps to avoid those activities which cause climate change. Accordingly, developing countries should be urged to make a sacrifice (by

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[115] *Eight Conference of the Parties to the U.N Framework Convention on Climate Change*, 42 Earth Negotiations Bulletin, NO 209 available online at:<http//www.iisd.ca/linkages/download/asc/enbl2209e.txt.(Last visited on 23rd May, 2005), See also Anonymous, *Proposal to Reduce Greenhouse Gases Loses Momentum* , N.Y Times, Nov 2, 2002 at A4 (the wording of the declaration at the end of the Eight conference of the parties was a victory for developing countries which fought hard to ensure that the declaration did not include any possible future measures they might have to abide). See also, Atal Bihari Vajpayee, "Speech of Prime Minister Shri Atal Bihari Vajpayee at the High Level Segment of the Eight Session of Conference of the Parties to the UN Framework Convention on Climate Change New Delhi", October 30, 2002, available online at http://unfcc.int/cop8/latest/ind_pm3010.pdf (Last visited on 24th January, 2005).

[116] Articles 3(4), of the FCCC supra note 19. See also article 3(5) which states that parties should co-operate to achieve sustainable economic development of all parties.

placing restrictions on their GHG emissions) in order to ensure a healthy climate and avoid the deleterious consequences of climate change. Incentives in the form of financial/technical assistance to developing countries in order to aid them in their efforts to limit GHG emissions could compliment such measures.

Fortunately, the FCCC has provisions for funding mechanisms which can be used to encourage developing countries. If the international community embraces and honestly implement these funding mechanisms, developing countries may be encouraged to accept a limitation on their emissions of GHGs. For example, the Special Climate Change Fund (SCCF) under the FCCC can be used to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification.[117] In the same vein, the Least Developed Countries Fund (LDCF) is available to support a work programme to assist developing and least developed countries to implement national adaptation programmes aimed at preventing climate change.[118] Finally the Adaptation Fund (AF) can be employed to support the implementation of concrete adaptation projects and the increased costs of developing countries associated with meeting their anticipated commitments to restrict GHG emissions in their countries.[119]

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[117] Information on this is available online at: http://unfccc.int/cooperation_and_support/funding/special_climate_change_fund/items/2602.php, (Last visited on 25th May, 2005).

[118] Information on this is available online at: http://unfccc.int/cooperation_and_support/funding/ldc_fund/items/2601.php(Last visited on 25th May, 2005).

[119] Information on this is available online, see http://unfccc.int/cooperation_and_support/funding/adaptation_fund/items/2600.php, (Last Visited May 25th 2005). For the suggestion that the foregoing mechanisms are ineffective, see, R. Ramachandran, "Consensus and Conflicts" Frontline, Volume 19 - Issue 23, November 09 - 22 2002, available online at: http://www.frontlineonnet.com/fl1923/stories/20021122007312300.htm, (Last visited on 23rd May, 2005).

The above funding mechanisms are good. However, they need to be complimented with a commitment by developing countries to limit their GHG emissions. In this regard, the international community may borrow from the model that was applied under the *Montreal Protocol on substances that deplete the Ozone Layer*.[120] Under that model, developing countries are only bound by emission reductions when an agreement on compensatory financing and technology transfer is reached with developed countries.[121] To apply this model in the climate change context, the international community will need to enter into an agreement on limitation of GHG emissions. Under the terms of this agreement, developing countries must commit to limit their GHG emissions while developed countries will provide technology and funding for this purpose.

To give more credibility to the proposed model, the international community may choose to involve the World Bank to finance the agreed cost of developing countries meeting their commitment to restrict GHG emissions. This approach was also adopted under the *Montreal Protocol*, whereby an agreement was reached between the executive committee of the interim multilateral fund ("executive committee") for the implementation of the Montreal Protocol and the World Bank.[122] Under that agreement, the World Bank agreed "to co-operate with the executive committee and assist it in administering and managing a programme under the authority of the parties to finance the

[120]See generally The *Montreal Protocol on Substances that Deplete the Ozone Layer* available online at http//www.unep.org/ozone/montreal-protocol/montreal-protocol2000.html, Particularly articles 5 and 10 (Last visited on 10th Sept 2004).

[121]*Ibid*. at article 5.

[122] See generally, "Agreement between the Executive Committee of the Interim Multilateral Fund for the Implementation of the Montreal Protocol and the International Bank for Reconstruction and Development (World Bank) available online at http://www.unmfs.org/policydoc44p633.htm (Last visited on 23rd May, 2005).

agreed incremental costs of parties operating under paragraph 1 of Article 5 of the Montreal Protocol."[123]

To involve the World Bank in the proposed funding arrangement, the international community could establish a "Climate Change Fund Committee" to oversee and liaise with the World Bank on modalities for provision of funding.

Incentives beyond those currently contemplated in the FCCC and the Protocol to encourage developing country participation in the international effort to prevent or mitigate climate change can be justified on grounds that it is aimed at ensuring the protection of the climate. Such incentives also provide a means of making developed countries pay, albeit belatedly, for environmental degradation associated with their economic and social development.

The use of incentives is a variant of the notion of substantive equality and is preferable to total exemption of developing countries from a commitment to restrict their GHG emissions. If a developing country incurs an opportunity cost by forgoing a natural development option to preserve environmental resources that are of global or special interest to other states, it should be entitled to some compensation. The fact that such restraint would also be in its long-term interest should not foreclose this entitlement.[124] Afterall, financial assistance arrangements, debt forgiveness strategies, as well as numerous formal and informal declarations in the international arena, testify to the recognition of the legitimacy of such claims.[125]

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[123] *Ibid*.
[124] Gunther Handl, "Environmental Security, and Global Change" *supra* note 102 at 84.
[125] *Ibid*.

3.7 Conclusion

There is a need to formulate an effective international agreement to prevent climate change. This need is even more daunting at this stage in the life of the FCCC and the Protocol with negotiations for the second commitment period for the Protocol set to commence later in the year.

In order achieve the foregoing objective, two things are crucial. First there is a need for application of the PP. This would entail taking measures to prevent climate change, including a restriction on the emission of GHGs by all countries. The PP, if properly applied in the context of global climate change obligations will lead to increased stringent global commitments by introducing limitations on actions of states in relation to emission of GHGs. Second, more nations need to be encouraged to participate in the FCCC and the Protocol. The strength of any international agreement on climate change depends on the commitment of its signatories. Participation could be encouraged by adjusting the distribution of emission targets among parties away from historical emissions to a distribution, which reflects generally acceptable and effective criterion.

The DR Principle encourages participation in the FCCC and Protocol by developing countries, thereby increasing the number of countries that agree to be bound by its provisions. However as noted, the zero emission reduction aspect of the DR Principle has the perverse effect of not only discouraging some developed countries from participating in international agreements to curb climate change but also exacerbating climate change.

Since the zero emission reduction aspect of the DR Principle allows developing countries to continue producing increasing detrimental amounts of GHGs, it should be

abandoned. It is true that it secures participation by developing countries, a crucial element to the efficacy of global efforts to prevent climate change. However this participation is not effective. Developing countries can be encouraged to participate in the global effort to prevent climate change without exemption from the obligation to avoid that which causes climate change.

To encourage developing countries to agree to place a restriction on their GHG emissions, the use of incentives namely financial assistance, technology transfer and debt forgiveness should be fully explored.

4 Conclusion

Given the nature of human induced climate change, an effective international agreement which implements reductions in the emission of GHGs has to involve all the countries that account for GHG emissions. The effectiveness of any agreement, which seeks to curb the incidence of climate change, is, to a large measure, influenced by the number of countries, which agree to place restrictions on their emissions of GHGs.

The current pattern under the climate change regime whereby differential treatment in the form of zero restriction and increases in GHG emission is made for some countries does not constitute an effective approach to remedying the climate change crisis.[1] The regime overlooks the fact that GHG emissions from all countries are at the root of climate change. Restriction of GHG emissions by some developed countries alone cannot prevent climate change; increasing emissions of GHGs by developing countries will offset the efforts made by those developed countries.

Developing countries can share some responsibility for climate change mitigation by accepting restrictions on emissions of GHGs regardless of the limitation on their economic and technological capabilities. This need for restriction on emissions of GHGs by developing states exists despite the fact that the past responsibility of developing countries for causing climate change is smaller than that of developed states.[2]

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[1]Paul G Harris, "What is Fair?; International Justice from an Environmental Perspective" available online at http://www.ciaonet.org/isa/hap01.html. (Last visited on March 31, 2004). (Unilateral efforts by developed industrialized countries, while essential as a first step, will be overwhelmed as the large developing countries use more energy and produce more environmental pollutants. If China burns its vast coal reserves and Brazil cuts its expansive rain forests, greenhouse gas levels will increase beyond the potential control of the industrialized countries).

[2]See generally, Daniel Barstow Magraw, "Legal Treatment of Developing Countries: Differential, Contextual and Absolute Norms" (1990) 1 Colo. J. Int'l Envt'l. L. & Pol'y 69.

As noted in this thesis, there are arguments that support all aspects of the DR Principle in the climate change context. Some of these arguments are meritorious. However from the point of view of environmental protection, a better strategy towards an effective solution to climate change is to adopt an approach that places some restriction on GHG emissions by developing countries. This can be achieved if developing countries agree to reduce their GHG emissions by an agreed percentage. Incentives in the form of meaningful, financial/technological or economic aid programmes can be used to assist developing countries in meeting those emission targets.[3] This approach would enable developing countries to internalize an environmental friendly approach in order to prevent climate change now and in the future.

An effective solution to human induced climate change can only be reached when the leadership principle of developed countries in preventing climate change is combined with binding GHG emission targets which are assessed on developing countries. The inclusion of developing countries should however be based on a DR Principle that places some limitation on GHG emission by developing countries but also makes provision for financial/technical assistance to such countries. This approach gives consideration to the "specific needs and special circumstances of developing countries."[4] In addition, this approach takes into account the limited capability of developing countries as well as the historical responsibility of developed countries for climate change. It also has the capability to encourage the economies of developing countries to grow in an

[3]See also 143 Congress Records at S 8124 (daily ed. July 25, 1997) (Comment by Senator Patrick Murray).
[4]Articles 3(2) and 4(4) of *The United Nations Framework Convention on Climate Change 1992*, ["FCCC"]. For a full text of the Convention, see 31 I.L.M 849.

environmentally friendly direction obviating the need to re-address the problem that could arise from future emissions.[5]

If the assistance rendered to developing countries is combined with commitment by them to reduce GHG emissions, an effective solution to climate change may be achievable. This approach is appropriate because most developing countries lack the technology and the financial muscle to take measures in order to channel their economies in a low GHG emissions growth track.

The suggestion that there should be some restriction on emission of GHGs by developing countries is necessary for at least three reasons. First, although developed countries account for a disproportionate share of GHG emissions, as developing countries continue to grow, their emissions will increase and exceed that of developed countries.[6] As a result, the current effort to mitigate climate change will be enhanced if developing countries are encouraged to place restrictions on their emissions of GHGs.[7]

Second, binding emission standards on all countries represents a long-term solution which takes into account the possibility that developing states will soon become leading emitters of GHGs. The binding emission standards should not be the same for developing countries. Considerations based on the peculiar circumstances of each developing country should influence the target imposed on the country. This would, conform with the DR Principle, while also achieving substantive equality among developing countries.

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[5]See Richard B. Stewart, "Environmental Regulation and International Competitiveness" (1993) 102 Yale L.J 2069, 2080 (On the need to encourage economies of developing countries to grow in an environmentally friendly direction).
[6]Daniel Bodansky, "Managing Climate Change" (1992) 3 YIEL71.
[7]*Ibid*.

Third, since negotiations for the second commencement period of the FCCC are meant to start later in the year, it is important that countries formulate an effective international strategy and agreement in order to prevent climate change.

Restriction on GHG emissions by developing countries in the manner canvassed in this thesis should be a welcome development because it re-affirms that developing countries have common responsibility to address climate change but that their responsibility will remain differentiated from those of developed, and much more capable, industrialized developed countries. It acknowledges the historical culpability theory based on a perception that climate change has mainly been caused by developed states and should be tackled primarily by them and was never intended to be a justification for allowing developing states to continue to engage in activities that would cause climate change.[8]

To encourage developing countries to participate and agree to be bound by agreements to limit GHG emissions, the international community should model the DR Principle in the climate change regime along the same lines, as is the case under the *Montreal Protocol on Substances that Deplete the Ozone Layer*.[9] Under this arrangement, countries would enter into an agreement on limitation of GHG emissions. The agreement should have provisions which will commit developing countries to emission limits on the basis that compensatory financing and technology transfer will be offered by developed

[8]Patricia Birnie and Allan Boyle, *International Law and the Environment*, 2nd ed. (Oxford: Oxford University Press, 2003).

[9]*Montreal Protocol on Substances that Deplete the Ozone Layer*, 26 ILM 1550 (1987). Particularly Articles 5 and 10 (On financing terms as an incentive to developing countries. Under Article 10, there exists a multi lateral fund which require developed countries to create a mechanism that provides financial and technical co-operation including the transfer of CFC free technology to the developing countries who otherwise have no access to it). See also Monica Brookman, "Equality Among Unequals in International Environmental Law" (2000) 25 Columbia Journal of Environmental Law 369 at 377.

countries.[10] International funding can be used to compliment this model. Under this scheme, developed countries will contribute to a global fund, which would be used to finance GHG emission reduction projects in developing countries through the World Bank. The use of such funding arrangements re-iterates an important premise underlying the DR Principle, namely developed states should play a leadership role in the global effort to prevent human induced climate change. It is also in accordance with the notion of substantive equality which would justify preferential treatment of developing countries whose use of fossil fuel has been circumscribed by the consumption by the developed world.

Application of the DR Principle in the manner canvassed in this thesis also emphasizes the PP which focuses on and aims to prevent human induced climate change by promoting the global interest in order to mitigate climate change and avoid its devastating impacts. The need to prevent climate change, the PP should guide any GHG emission regime, as the long-term cost of climate change is higher than the cost of taking preventative action now.[11] It is worth the immediate costs especially when compared with the remedial costs associated with the consequences of climate change. In this sense, money spent in preventing human induced climate change is money saved.

Climate change is a global problem that demands a global solution: emissions of GHGs in one country can affect the climate and individuals in other countries; also the consequences of inaction could be dangerous.

As Athanasiou and Baer state:

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[10]Harald Hohman ed,. *Basic Documents of International Law* Vol 1 (London:Graham and Trotman, 1996) 547.

[11]Bing Ling, "Developing Countries and Ozone Layer Protection, Issues, Principles and Implications" (1992) 6 Tul. Envt'l L.J 91, 99.

> "Understand that in a world beset by ecological crisis, distributive justice must mean more than it did in the past. It must include not only the fair distribution of wealth, resources, and opportunities, but the fair distribution of "impacts" as well. Because the elemental truth is that as the storms become more violent and the droughts more fierce, some of us will be hurt far, far more, and far earlier, than others. The rich will be able to hide, but the poor will not, and neither will the plants and the beasts. . . . Climate change must be minimized, but at this point severe impacts are entirely inevitable. The harm these impacts bring to the poor—always the most vulnerable—must be minimized, and then alleviated, while the "burdens" of "adapting" to climate change must be honestly addressed, fairly distributed, and adequately funded. Anything else would be unjust and lead inevitably to distrust, bitterness, and failure."[12]

Accordingly, cursory participation by developing countries in the international global climate change regime should be encouraged because developing countries also stand to benefit from preventative actions taken now, as do we all.

[12]Tom Athanasiou and Paul Baer *Dead Heat: Global Justice and Global Warming*, (New York: Seven Stories Press, 2002), 41-42.

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